

Drawpile Help

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Planned Updates to this Document

1. Lot of stuff here needs updated to reflect the newer version of Drawpile. I'll be releasing some videos as well, hopefully sooner rather than later. If you have questions, feel free to contact me using the section below.

Feedback

1. Contact me with any questions or feedback on additional information I can put on this document. Or even better, simply press the comment button in the upper right of this page. If you want your server added to the list of known servers, feel free to contact me!
 - a. **Discord:** Bluestrings
 - b. There's an official Drawpile Discord Server! Join now -- <https://discord.gg/xna7Nnh>
2. If you love this guide and would like to say thanks, buy me a [\\$3 Ko-Fi](#) (or more). This has been literally been several months worth of work and time. If you can't afford to do anything, that's fine, just let me know how much you love my hard work!
3. For the Raspberry Pi Script, it was made with the assistance of the Creator of Drawpile! Just click this [PayPal link \(assuming you're already logged in\)](#) and put his e-mail into that page if you want to donate some money as thanks for all that he does! laakkonenc@gmail.com

Tips and Tricks for Drawing on Drawpile

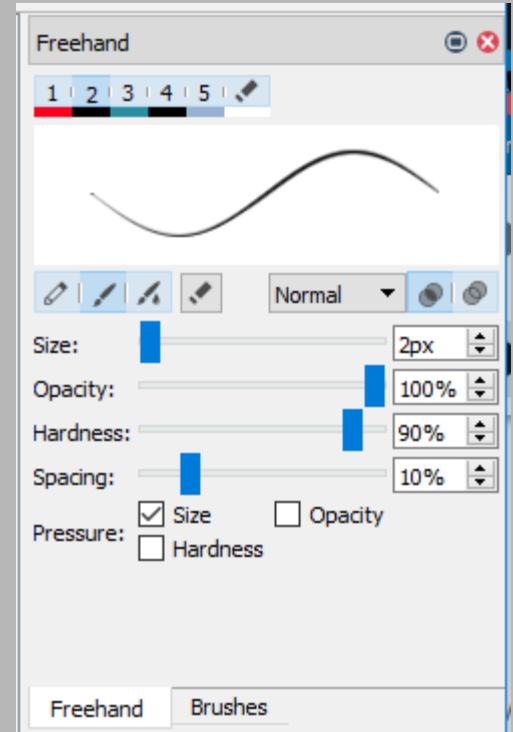
1. Viewing Boards with Mature Content.
 - a. Edit, Preferences, Parental Controls, check the radio button that says "Unrestricted" beside "NSFM sessions."
2. Pen Pressure is not enabled by default
 - a. Make sure the "Size" checkbox is enabled as pictured to the right. If it still doesn't work, go to Edit, Preferences, and make sure "Enable pressure sensitivity" is checked.
3. Shortcuts
 - a. See the [Shortcuts page](#) for useful buttons you can use or even program into your tablet. I'd also suggest reading [this page](#) as well!
 - b. If you have a Wacom tablet which has buttons, try [reviewing my guide](#) to set up "Hotkeys for Tablet". Note that this was typed up for a [website called iScribble.net](#).
 - c. Pro Tip: You can rotate selections by holding alt and clicking inside the selection, then move your mouse around!
4. If your computer is slow and lags...
 - a. Try [reviewing my guide for Maintenance on Windows Computers](#). Note that this was typed up for a [website called iScribble.net](#).
 - b. If you have drawing related lag or issues, I'd suggest going to Edit, Preferences, and try checking "Enable bug workarounds."
5. Drawing Resources:
 - a. Shading Video - <http://andantonius.deviantart.com/art/Basic-Blending-Tutorial-101327993>
 - b. General Lessons - <http://www.drawspace.com/lessons/>
 - c. Art Videos by Sycra - <https://www.youtube.com/user/Sycra>
 - d. Human Nude model Pose reference - <http://posespace.com/posetool/default.aspx>
 - e. 3D Muscle Pose Models - <http://www.posemaniacs.com/>
 - f. MASSIVE Pinterest Collection of References - <http://www.pinterest.com/characterdesigh/>
 - g. Character height comparison tool - <http://www.mrinitialman.com/OddsEnds/Sizes/sizes.html>
6. Wacom Tablet stops working while drawing
 - a. This normally means you have to restart your computer to get it working, or you can go through and manually restart the Wacom services. Or you can [use my script](#) to restart it instead. Press the windows key + R, type in "notepad" (without quotes). Copy the text from the hyperlink earlier and paste it into the notepad you just opened. Go to file, Save As, and type in the following (make sure to put the .bat at the end)

 + 

```
01 Setup Drawpile Dedicated Server.bat
```
 - b. Once you've done that, simply double click the file you made and let it run as administrator.
7. Known Web Hosting Servers - *Use these online servers to connect to if Drawpile.net's Server Listing is Down*
 - a. Go to Session, Join... and type in one of the server names listed below in the "Server:" field, and hit Join instead.

This will produce an alternate listing of Drawpile rooms available.

artcafe.topcat.io	(Owner: Snewberry)
drawpile.net	(Owner: Calle Laakkonen)
sofurrydrawpile.chickenkiller.com	(Owner: warbles/Clockworkwolf)
sportwar.goip.de	(Owner: speed#4047)
syntheticdreams.net	(Owner: bones/Liz)
syntheticdream.net	(Owner: bones/Liz)
greywinde.beerprojects.com	(Owner: Bluestrings, aka creator of this document)



How to Host a Single Room

How to Host a Session on your Computer

There are issues you may run into if your router doesn't support [Universal Plug and Play \(UPnP\)](#), which require manual configuration, known as port forwarding for hosting sessions. If you're using a dedicated server, this is especially important to use as well as reserving an IP address for your server. The [official instructions for hosting are located here](#).

Before beginning, go to Edit, Preferences, Network. Make sure "Automatically set up port forwarding with UPnP" is enabled and set "Session history" to 10.0 Mb (you can set this value larger if you routinely make large canvases, though this can cause issues for people with slow internet connections). This option creates a snapshot of the room drawing when the load gets too long. The purpose of this is detailed in the [Known Issues and Troubleshooting](#) section called "*User disconnects while board is currently loading!*" This section also indicates how to make a snapshot manually.

Use those instructions to host your session, or follow the instructions listed in the following section for [hosting on drawpile.net](#) (but exclude the step for the "Remote server", use the "Built-in" server option). Once the session is hosted, you're ready to test your setup. Go to [CanYouSeeMe.Org](#) to test if your port is open by typing in 27750 and clicking the "Check Port" button.

If you get the message "Success: I can see your service on...", this means that you are ready to host your first session! Bear in mind however, that if you leave a room you created or your internet service goes offline that everyone will be kicked from your room. However, it may be useful in the event the Drawpile Server Listing is offline or if there are too many boards listed on Drawpile.net.

If you get the message "Error: I could not see your service on..." this means that either your router doesn't have UPnP, your router doesn't have UPnP currently enabled, you're behind a firewall (which could be a built in Firewall from Windows or an antivirus software suite), or you didn't host the session first. Not to worry though! If you ran into a problem here, I have more advanced instructions for you to follow [here \(Host Multiple Rooms on your Windows Computer, step 2\)](#). Though this section uses a script to help you do the process.

If you don't want to do that, you can do it yourself. How to set up port forwarding depends on your router, but it typically goes something like this:

1. Go to the router configuration site (Often 192.168.1.1 or 10.0.0.1)
2. Go to the "forwarding" or "virtual servers" page
3. Create a new forwarding entry: port 27750, TCP protocol and the IP address of your computer. (It helps to assign a static IP to your computer, so you don't need to change the forwarding entry later)

If you have a local firewall (Windows firewall, Comodo, McAfee, F-secure, etc.), you need to configure that as well. For more detailed guides, check out [portforward.com](#).

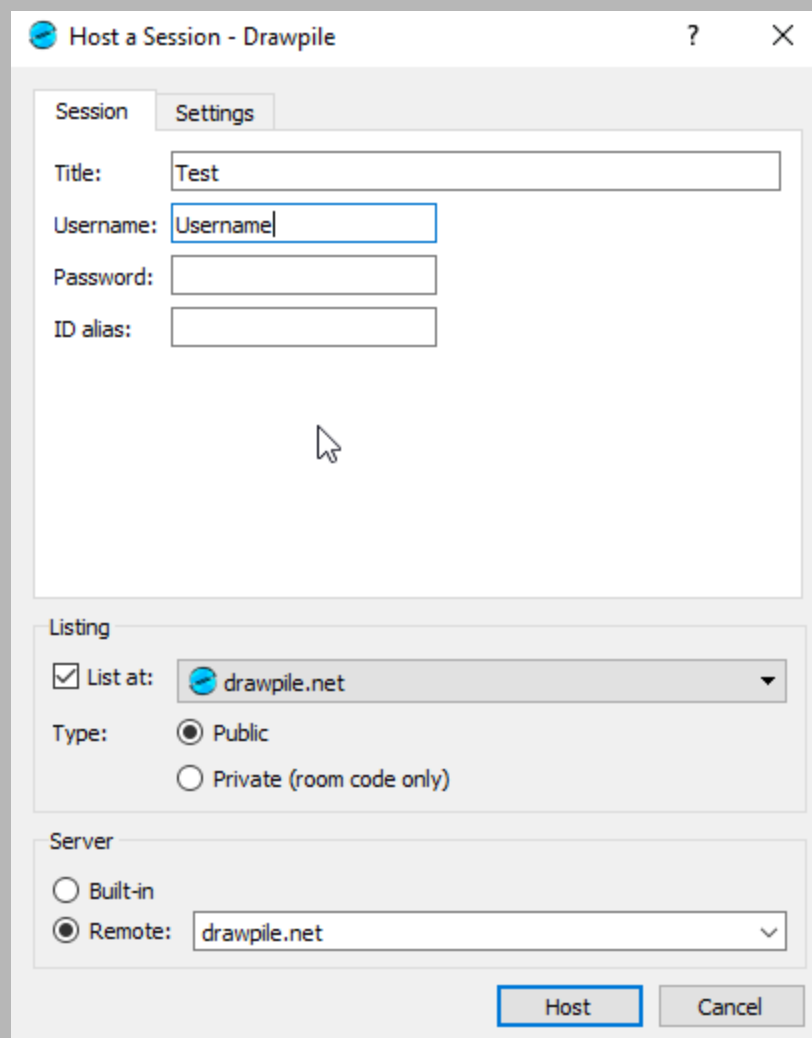
How to Host a Session on Drawpile:

Now there are plenty of problems that may occur with hosting on your computer, so if you don't feel like dealing with those or you don't know how to/are unable to fix those issues then it's time for you to use Drawpile's server.

First, when you want to host drawpile you go to session and look for hosting.

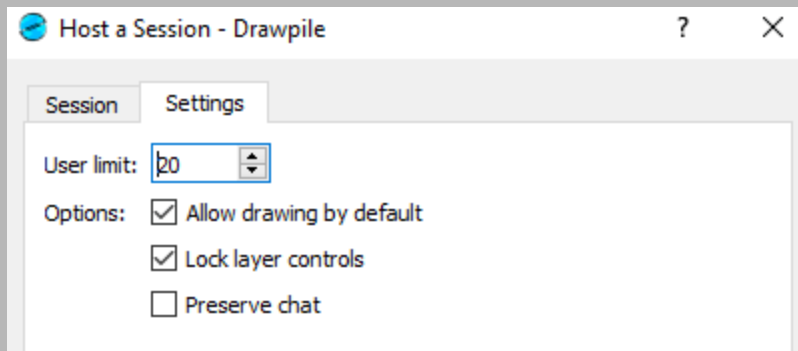


After clicking it, this screen should pop up. Assuming you've never hosted before most of it should be empty, if you are going to host with your server just type in your nickname and the server name. Make sure the Remote button is checked and type in drawpile.net

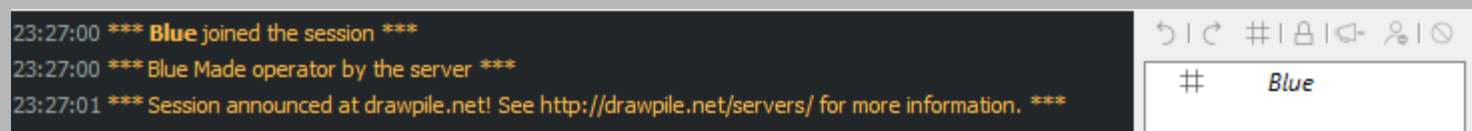


Remember, you can type whatever you want for the "Title" section and "Username" sections!

You shouldn't need to mess with the Settings tab as there are usually no settings to be changed. That is unless you want to prevent new users from being able to draw, you'd uncheck the first box and then have to give them permission to draw. If you uncheck "Lock Layer Controls", anyone can change and move layers. It is not suggested to change this setting unless it is a private setting with friends.



Press the “Host” button! After you host it the screen should close and your screen should look like this at the bottom. It is important that the two lines from “Server” show up, otherwise something was done wrong (Read more in the important note below)!



Important Note:

If both of the lines do not appear, that means your server won't be listed on drawpile. This can be easily fixed by going to “Session” and “Settings...” and then go to the “Announcements” tab, click on “Public listing” and then click on “Drawpile.net”. Click “Close” and you’re good to go!

The only way to see it would be to connect to drawpile.net on the join session menu and then join from the menu that pops up listing the servers hosted on drawpile. It shouldn't normally be a problem however.

How to Host Multiple Rooms

Windows Computer

1. First decide how you want this to be used. You can decide to use your personal computer, but that may get shut off occasionally or restarted. If you want a device that is low power and stays on all the time, I'd suggest a Windows Mini Computer HDMI stick device. There are many devices out there, I'd just suggest searching for "Windows HDMI stick" on Amazon for a variety of models and capabilities.

a. \$122.47 - [Intel Compute Stick CS125 Computer w/Intel Atom x5 Processor & Wi 10 \(BOXSTK1AW32SC\)](#)

2. We then need to [check to see if the port is open! - Setup Drawpile Dedicated Server Port Check for Windows](#). Press the windows key + R, type in "notepad" (without quotes). Copy the text from the hyperlink earlier and paste it into the notepad you just opened. Go to file, Save As, and type in the following (make sure to put the .bat at the end)



01 Setup Drawpile Dedicated Server.bat

- a. Go and double click the file you just created. You'll want to follow the instructions it gives you to make sure that your port is open.
3. **Optional Step (Strongly Recommended):** Sign up for a free account to update your internet IP address automatically to a much easier to remember hostname. So instead of typing something like 8.8.8.8 (which may change depending on your internet provider) to join your server, people can type [mydrawpileservers.bounceme.net](#) instead!
 - a. **Option 1:** Use [FreeDNS.Afraid.Org](#) to get service instead! Free to use and no need to re-register the domain every 30 days.
 - i. Register an account, go to Subdomains option on the left, select option Add a subdomain. Leave Type set to A, set any desired subdomain name that you wish to use. Domain options are listed in the dropdown, you can pick Many many more available in order to search for domain names you like that are listed as Public. Click the link Shared Domain Registry and search for a desired domain. Once you find a name you like, click on the link on the left. Leave the fields Destination, TTL, and Wildcard as they currently are... and fill in the Captcha that everyone loves and hates.
 - ii. Get a program to update your IP address by a "Windows Client" or make your router do it under the "Router Client" section. This [web page](#) as a whole list of different ways to do it!
 1. Here's [a link \(Dynamic DNS for FreeDNS\)](#) to a program that will update your hostname with your current Public IP address, and it should work pretty easily for you.
 2. Another [option is this one](#), which runs as a service in the background automatically. I don't think this one works as smoothly or as nicely though, so try the option above first.
 - a. Install the program and then navigate to this folder
C:\Program Files (x86)\NeSociety\AfraidServiceUpdater4
 - b. Right click "AfraidServiceUpdater4Configurator.exe" and select "Run As Administrator". Put in your username and password for FreeDNS.Afraid.Org that you created. Make sure to restart your computer and then run the program as admin again to check that it shows the domain you registered using FreeDNS. If you have questions about setting up the program, [watch this video](#).
 - b. **Option 2:** [No-IP](#) to obscure your Internet IP address. This allows for users to more easily connect to you without knowing your current IP address, which may change due to the way the internet currently works.
 - i. Once logged in, you should be looking at the dashboard. You will know if the hyperlink at the top is [https://my.noip.com/#/](#). Just type your desired hostname and choose a domain drop down that you

like. from the “Free Domains” options. Click the button “Add Hostname”. You will just need your username and password to set this up.

- ii. If using the classic site, click “Add Host” on the left. Type in your Hostname and choose a domain on the right from the list of “No-IP Free Domains”. Make sure the host type is set to “DNS Host (A)”. For “IP Address”, open a new tab and go to www.whatismyip.com to get your IP and put it in this field. Leave other options at default values and click “Add Host”.
- iii. Make sure to download and [install the client](#) so it does this automatically.

4. **Install WGET For Windows** - [Download it here](#) by selecting the [“Complete package, except sources” setup link](#).

While this isn’t actually necessary to install, it’s highly recommended. This program will allow the script being used to check for updates to the script and auto download them. This will make things easier for you! Once installed, you don’t need to do anything else with it.

5. **Create a batch file with the necessary information to create your server.**

- a. [Drawpile Dedicated Server - Start](#) script here in this link, open it in a new tab and come back here. Press the windows key + R, type in “notepad” (without quotes). Copy the text from the hyperlink earlier and paste it into the notepad you just opened. Go to file, Save As, and type in the following (make sure to put the .bat at the end)



02 Drawpile Dedicated Server - Start.bat

You can also get yourself my [01 OpenSSL Script.bat](#) for setting yourself up with encrypted sessions. The batch script should explain all the info and settings you may want to configure.

- i. **Note 1:** Templates is not yet implemented in the server’s graphical interface at this time which allows you to create boards that are default sessions which always exist on the server.
- ii. **Note 2:** Files for drawpile-srv specific to your configuration are stored here:

“%localappdata%\drawpile\drawpile-srv”

You can easily access this location in the future by right clicking a blank spot on your desktop or whatever folder you prefer, go to new, shortcut, name it *drawpile-srv files*, and paste in the directory above in double quotes.

- iii. [Official Documentation on Running the Dedicated Server](#) can be found on their website. Below are some of the supported commands you may need to know when configuring your setup.

Usage: drawpile-srv [options]

Standalone server for Drawpile

Options:

-?, -h,	--help Displays this help.
-v,	--version Displays version information.
--gui	Run the graphical version.
--port, -p <port>	Listening port
--listen, -l <address>	Listening address
--local-host <hostname>	This server's hostname for session announcement
--announce-port <port>	Port number to announce (set if forwarding from different port)
--ssl-cert <certificate>	SSL certificate file
--ssl-key <key>	SSL key file
--secure, -S	Mandatory SSL mode
--record <path>	Record sessions
--database, -d <filename>	Use configuration database
--config, -c <filename>	Use configuration file
--sessions, -s <path>	File backed sessions
--templates, -t <path>	Session templates

--extauth <url>	Extauth server URL
--report-url <url>	Abuse report handler URL

- iv. Make sure the dedicated server executable is allowed access to the firewall. Windows should open up a window asking for access when the program attempts to go online. If you used the script [00 - Setup Drawpile Dedicated Server Port Check.bat](#), they should already have unrestricted internet access as the script takes care of this if you have a Windows Firewall. If you have a third party program, you need to specifically allow drawpile-srv.exe access to the internet. Consult the company that made the firewall product.

6. Go and double click the file you just created

7. How to Host to your own server

a. From your Computer

- i. Use the "Address:" which appears in the Drawpile Server GUI window that pops up for hosting sessions. Simply put that number under the Server section where it says "Remote:".

b. From a computer outside of your home or outside of your internet connection

- i. Use the Hostname you made earlier using [FreeDNS.Afraid.Org](#) or [No-IP](#) in the section that says "Remote:".

8. Windows Drawpile Scripts - For Skipping Instructions (Advanced Users Only)

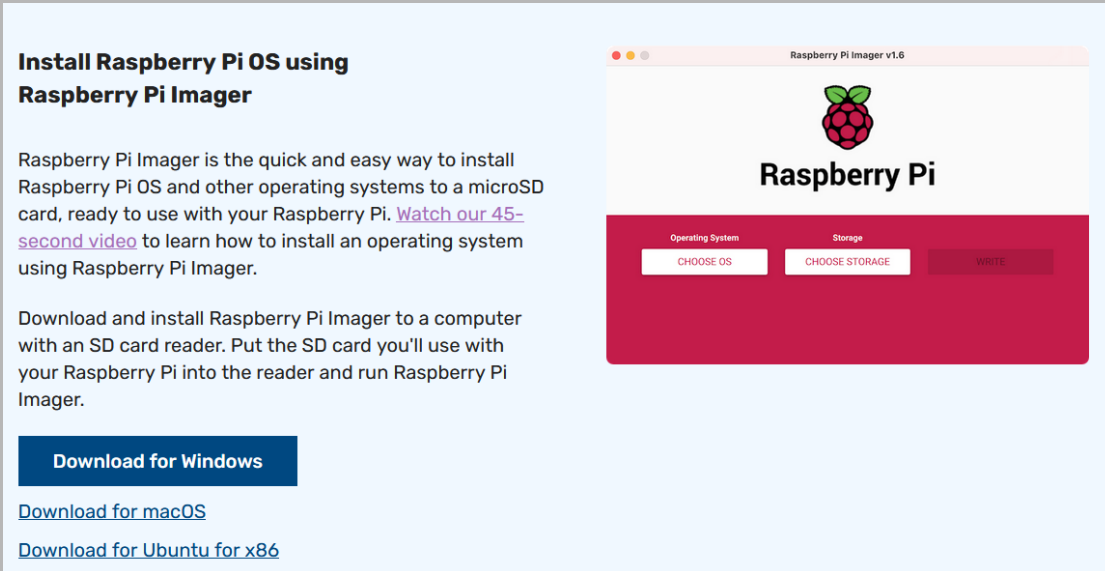
- a. Github → <https://github.com/Wade821/WinDrawpile>
<https://github.com/Wade821/WinDrawpile.git>
- b. Copy and Paste text into Notepad program, File, Save As, pick whatever name you want and end it in .bat, save it, then double click and run the batch file.
 - i. [00 - Setup Drawpile Dedicated Server Port Check](#)
 - ii. [01--OpenSSL-Script](#)
 - iii. [02--Drawpile-Dedicated-Server--Start](#)

Raspberry Pi running Raspbian Linux

Buy the stuff you need! The advantage of doing it this way is that it's low power. You don't have to worry about the server going down because you shut down your computer or had to restart for updates. Please see [this separate document for devices](#) as the setups can vary widely, depending on what you want to get or do.

1. Install the Operating System

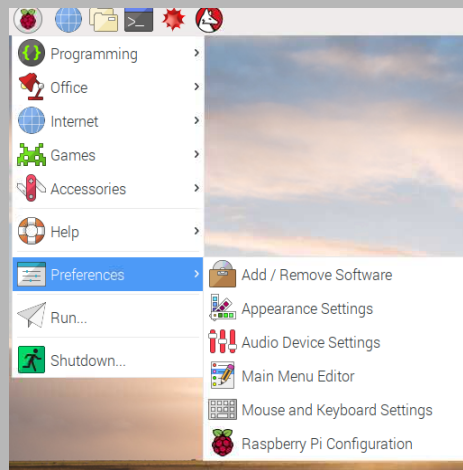
- a. [Download Raspbian Pi Imager on the main page.](#)



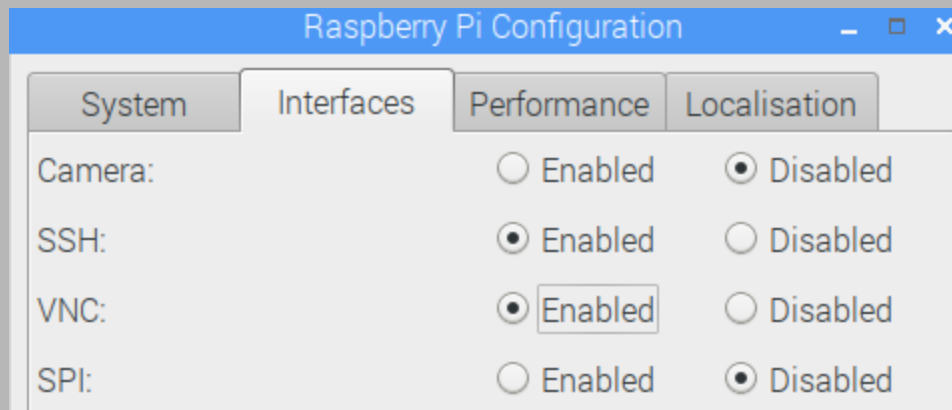
- b. [Use the Official Install Guide!](#) The link below points to the relevant video. It's as simple as "Choose OS", which will be "Raspberry Pi OS (32-bit)" (or whatever you preferred Raspberry Pi OS you prefer... bear in mind, other Linux flavors may not work as intended), choose the storage device with your memory card, configure settings using the gear in the lower left (recommended to "set username and password" with pi and whatever username you like, select "Configure wireless LAN", and select "Set locale settings"), and click "Write". Make sure you don't forget your admin password! If you forget your password, you can always go through step 2b & click "Change Password" to reset the password, or store it in a [secure note](#) in [Lastpass](#).
 - i. [How to use Raspberry Pi Imager | Install Raspberry Pi OS to your Raspberry Pi \(Raspbian\)](#)

2. Get the basics set up

- a. Put in the newly created micro SD card with Raspbian into your Pi, make sure your TV or display device is set to the correct input, and then plug in the power to your Pi. It'll reboot once before coming up to the main desktop.
- b. Then go to your start menu, the Raspberry Icon in the upper left corner, then Preferences, Raspberry Pi Configuration.



- c. Go to the Interfaces tab, and set “SSH” and “VNC” to enabled by clicking the radio button to the left of the word Enabled. Hit Ok at the bottom.



- d. Go to [RealVNC](#), download the VNC Viewer software, and install it on your desktop or laptop. While it's downloading or installing, go ahead and create an account so you can save the information to access your Raspberry Pi from anywhere, or share the computers set up with other people so a team of up to five people can access it remotely (when you're logged into your account, go to People on the left to set it up). Don't worry, your desktop or laptop is only accessible remotely if you decide to also install [VNC Connect](#) as well.
- e. *Two Ways to Connect to your Pi*
- Click the white and blue VNC icon in the upper right. Then click the “Sign in” link. Use the username and password you just created and click “Sign In”. Make sure to click “Direct and cloud connectivity”, click Next >, and then Apply. You can click “Do not display this message again” and “Close” on the window that appears letting you know that “Granted permissions without asking for password” if that appears at any time. Click Done and hit the x in the upper right corner.

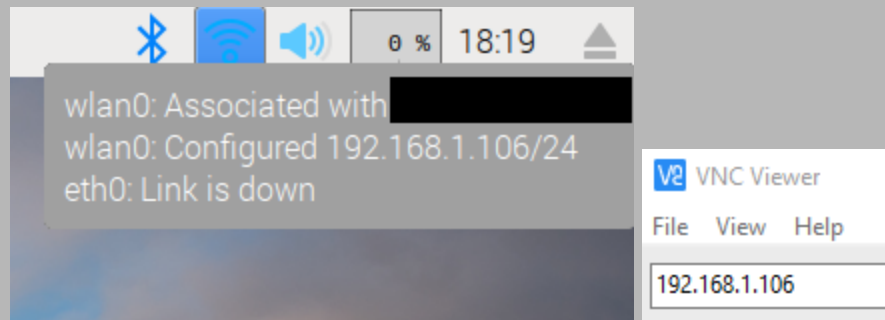


192.168.1.106

Connecting users can enter this address in [VNC Viewer](#)

[Sign in](#) to enable cloud connectivity or [learn more about the benefits](#)

- Either hover your mouse over the network to see your local IP address, or click on the white and blue VNC icon in the upper right corner as depicted in the picture above. Armed with this information, go to the “VNC Viewer” program you installed on your computer. Type it into the address bar at the top, you do not need the info starting after the slash. See picture for details. Hit enter, and put in “pi” for the username and put in the password you used earlier in step 3, part d (where you went into the Raspberry Pi Configuration Menu). Hit Ok or Enter, & you're in!



- f. Now you can control your Raspberry Pi from your desktop or laptop, we're going to set one more setting. Go to your start menu, the Raspberry Icon in the upper left corner, then Preferences, Raspberry Pi Configuration, and then to the Localisation tab.
 - i. Click "Set Locale..." to "en (English)" and your country. For myself, I chose "US (United States)" for the Country section and left everything else the same.
 - ii. Click "Set Wifi Country..." and set to your appropriate country. I know different regions have different wireless requirements, so it's best to set this appropriate to your location.
- g. Once that's set and you're rebooted, you may see a download icon in the upper right corner of the screen. Click it to either show or install updates for your system., then wait for it to finish.

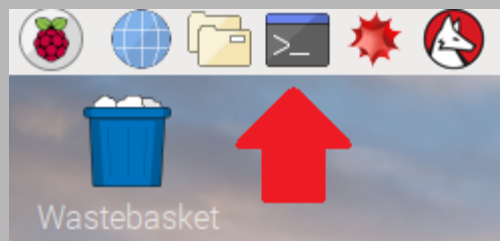


3. Get the script over to the Pi to get started. You have technically have three ways of doing this as VNC Viewer can transfer files over to the Raspberry Pi, but just do either option 'a' or 'b' for now.

- a. You can open a terminal (see screenshot below for reference) & type in the following commands, hitting enter after typing the line out (hit enter 6 times total):


```
sudo git clone https://github.com/Wade821/PiDrawpile.git /home/pi/Public/Programs/PiDrawpile
cd /home/pi/Public/Programs/PiDrawpile
sudo chmod 777 /home/pi/Public/Programs/PiDrawpile -R
./drawpile-installer-official-build-from-sources
```
- b. Or you can copy it over manually by going to the Raspberry Start Menu in the upper left, Accessories, Text Editor. Open [Drawpile Server Script](#) in a new tab, press Ctrl + A to select all of the text, and then Ctrl + C to copy it (You may have to do this in parts if it doesn't paste in). Leave this Window open because sometimes copying and pasting through VNC Viewer is tricky. Go to VNC Viewer, right click and select Paste. Then go to File, Save As, select "pi" on the left, then double click on Public. Type in the following (without quotes) "drawpile-installer-script" for the name at the top, set the option for "Character Coding:" at the bottom to "UTF-8" and leave the box to the right of that as is before you hit Save.
 - i. Make your script executable by doing the following: Open the folder icon in the upper right and double click on the Public folder. Right click your Script, go to Properties, Permissions Tab. Make sure "Change content:" and "Execute:" is set to "Anyone" and hit ok. Double click the file and select "Execute in Terminal."

1. If the above step doesn't work, use the following to help you out instead. Click on the terminal icon in the upper left



2. Type in the following commands and hit enter before moving to the line below it. Just change **YOURFILENAME** to the name you used earlier for your script. You can hit the x in the upper right of this window when you're done and try to run the script again. (*Explanation: First line changes the current directory to the Public folder that you can see in the operating system by clicking the folder icon besides the terminal icon, and then double clicking on the Public folder The second line performs the same thing we were doing earlier through the visual menu*)

```
cd Public
sudo chmod 777 /home/pi/Public/YOURFILENAME
```

- a. Alternatively, you can change all scripts and file permissions at once inside a given folder by typing in the following instead.

```
Sudo chmod 777 /home/pi/Public -R
```

4. The script will tell you everything you need to know from here on out.

- a. It will take care of every single step you need to get the Drawpile server running, so just read it and follow the instructions there. Here's some additional tips though!
 - i. If the script asks you something, put in the number for the option you want and then hit enter.
 - ii. If you have to paste something into the script, press Ctrl + Shift + V to paste!
 - iii. You can set any password you like for the user being created called *drawpileuser*, and you shouldn't have to remember it but I'd suggest using something you can remember anyway, just in case.
 - iv. **IMPORTANT:** Make sure this field: *Common Name (e.g. server FQDN or YOUR name) []*: is set to whatever your hostname is that you created with FreeDNS.afraid.org or No-IP.com. Failure to do this will prevent users from connecting to hosted sessions.
 - v. Make note of the username and password you created in the section "Setting up NGINX for remote authentication for server Administration", as you'll need this information to administer the server settings.
 1. If you type the password incorrectly during this window, you'll have to manually create the password yourself as it will not give you a chance to re-enter. So be careful. If you messed up, you'll see "htpasswd: password verification error" written in the script.
 2. If you messed up, just open a new terminal window and type in the following, where **USERNAME** can be anything you want it to be. Then type in the two commands after that so you don't have to restart your Raspberry Pi... or you can just restart it after doing the first command and the script has finished.


```
sudo htpasswd -c /etc/nginx/passwords USERNAME
sudo /etc/init.d/nginx restart
sudo nginx -s reload
```
 - vi. Towards the end of the script when it asks "Enable socket activation or start server when the Raspberry Pi powers on?" it is suggested for the time being that you use the option 2 "Server starts on Raspberry Pi power up". It's easier to administer the server and make changes this way.
- b. But it won't set up port forwarding of the 27750 port used by Drawpile. If you set this up earlier, you'll want to set it to your Raspberry Pi now instead of your Desktop or Laptop. You can use the section '[How to Host a Session on your Computer](#)' to setup port forwarding. To get your Raspberry Pi's Mac address to set a static IP for use with port forwarding, open a terminal on your Raspberry Pi and type in the following. Example below has a red square around the MAC address for your Raspberry Pi. You'll also want to forward port 8081 to the Raspberry Pi so you can controlling the server remotely when you aren't home or have a friend help you with administering the server.
 - i. For Wireless connections


```
ip link show wlan0
```
 - ii. For Wired connections


```
ip link show eth0
```

```

pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi:~$ ip link show wlan0
3: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DORMANT group default qlen 1000
link/ether b8:27:0d:01:02:03 brd ff:ff:ff:ff:ff:ff

```

5. To Administrate the Server Settings....

- This is for the section that does not use socket activation with systemd, as the script explained during the installation.
- On your Windows computer, press the Windows Key on your keyboard and the letter r at the same time. Try typing in this first
C:\Program Files (x86)\Drawpile\
- If that doesn't open a Window, try this
C:\Program Files\Drawpile\
- Find "drawpile-srv", right click and drag to your desktop. Let go of the right click and then left click the option "Create shortcuts here". Right click your new shortcut, and go to properties. Looking at the field that says "Target:", go all the way to the right and add the following... but make sure to change **MYHOSTNAME.WHATEVER.NET** to the hostname you created earlier on either freeDNS.afraid.org or noip.com.

--gui --remote http://MYHOSTNAME.WHATEVER.NET:8081/

- Note for Server is local (not online):** Change **MYHOSTNAME.WHATEVER.NET** should reflect the local IP address of the Raspberry Pi device. The only time you'd use your hostname instead is if you were not at home to remotely administrate server settings (perhaps friends you want to give access to the server settings).
 - IMPORTANT:** If you haven't already, you should have your router assign a specific IP address to your Raspberry Pi so it doesn't change as well as port forwarding to your Raspberry Pi's IP address. You can use the section '[How to Host a Session on your Computer](#)' to setup port forwarding
- Your line should now look like one of the following two examples, depending on what folder you went into earlier.
"C:\Program Files (x86)\Drawpile\drawpile-srv.exe" --gui --remote http://MYHOSTNAME.WHATEVER.NET:8081/
"C:\Program Files\Drawpile\drawpile-srv.exe" --gui --remote http://MYHOSTNAME.WHATEVER.NET:8081/
 - Click Apply and OK. Double click the shortcut, put in the username and password you created earlier in the script section called "Setting up NGINX for remote authentication for server Administration". And you're in! You can manage the server's settings now.
 - You can give other people this information to create a shortcut so they can help you administer the server, if you so wish to do so. Just use a password for server administration that you don't use for personal websites and other things.
 - Drawpile now supports saved username logins. To enable this feature, External authentication must be checked. It is highly suggested that the Permit guest logins when ext-auth server is unreachable is checked and Allow ext-auth moderators is unchecked. Finally, you must copy in the following line into the Validation key field:

9eJ2tMJlqgSqHOIK/GI/qzS14WqlxHeB1Im5Hs/CCck=

- SECTION H AND ITS SUB POINTS ONLY APPLIES TO SOCKET ACTIVATION
 - Use the "drawpile-server.sh" script that is under the Public folder. Double click that and execute the script, use option 1. This is the only way to administer the server if you're using socket activation.
 - If you wish to switch from one type of startup to another, use the "drawpile-server.sh" and choose option 4.

6. If you installed Samba File Sharing and you can't see the Raspberry Pi from your computer.

- a. The steps that follow after this presume that file sharing is already set up. If your network you are connected to is set to public, you will not be able to see other computers or devices. You can check out [Lifewire](#) for more help or [WikiHow](#). Or just google your operating system and “enable file sharing”.
- b. If you already have file sharing enabled, then you might need to do the following steps. Open the “Add or Remove Programs” (also known as Programs and features) in your start menu, or press the Windows key on your keyboard and the letter r, and then paste the text inside the quotes “control appwiz.cpl”.
- c. Go to “Turn Windows features on or off”. Find a section in there called “SMB 1.0/CIFS File Sharing Support”. Expand that by clicking the plus sign beside it, and check the boxes beside each of the dropdown options that appear which should be SMB 1.0/CIFS Automatic Removal, SMB 1.0/CIFS Client, and SMB 1.0/CIFS Server. Click Ok. Your computer will take a few minutes to get the necessary files, install them, and then will need to restart in order to make the changes go into effect.

7. Closing thoughts

- a. If you chose to use “File Backed Sessions” earlier and want your sessions automatically recorded, make sure to check the box “Archive terminated sessions”. Be aware that filenames are like 926a80d5-3168-401d-b406-f05d3fc05c32.dprec with a corresponding text file, the session title is inside the text file.
- b. If you want to play around with [templates, read more here](#).
- c. I might add more to this in the near future, but for right now I’m sick and tired of LOOKING AT THIS DOCUMENT. Ha! Pat yourself on the back, you did it. (*`ω´)b

Raspbian Drawpile Scripts - The Good Stuff

1. **Github** → <https://github.com/Wade821/PiDrawpile>

- a. <https://github.com/Wade821/PiDrawpile.git>

2. Copy and Paste Method

- a. Go to the Raspberry Start Menu in the upper left, Accessories, Text Editor. Open the desired script you wish to copy in a new tab, press Ctrl + A to select all of the text, and then Ctrl + C to copy it. Leave this Window open because sometimes copying and pasting through VNC Viewer is tricky. Go to VNC Viewer, right click and select Paste. Then go to File, Save As, select “pi” on the left, then double click on Public. Type in the following (without quotes) “drawpile-installer-script” for the name at the top, set the option for “Character Coding:” at the bottom to “UTF-8” and leave the box to the right of that as is before you hit Save. Open the folder icon in the upper right and double click on the Public folder. Right click your Script, go to Properties, Permissions Tab. Make sure “Change content:” and “Execute:” is set to “Anyone” and hit ok. Double click the file and select “Execute in Terminal.” If you’re not able to do this second part, go back to step 5 listed above as there are some additional steps listed there to try.
- b. [Drawpile Server Script](#) - Required for Initial Setup of Server
- c. [Drawpile Server Update Script](#) - Required to Update Server to Newer Version
- d. [Reset Public Folder Permissions](#) - Only required if using Windows File Sharing to reset permissions so you can modify files.
- e. [OLD - Drawpile Server v1.0.6](#) - For people who prefer to use the older Drawpile.

Cloud Options & Setup

Brief Overview

Costs listed below is the starting price range, as of September of 2023. There may be some cheaper options available on the website, but may have been avoided for technical reasons (e.g. [Google Compute's Spot Virtual Machines](#)). Busier servers with more users generally tend to require network speed than CPU. RAM and disk usage required depends on server settings (e.g. using file backed sessions or session recordings). As of now, Hetzner's offering appears to be the best overall. For testing speed, consider [Speed Test CLI commands](#) (command is speedtest).

Disclaimer: I may not be able to foresee all possible security issues, and there is always a possibility that the server may become compromised by bad actors. Feedback is always welcome on [Github](#) or reach out to Bluestrings on the [Drawpile Discord](#). Please use strong, unique passwords and limit use of personal passwords/data where possible. If you're uncomfortable doing this by yourself, I strongly suggest that you reach out to an IT Security Professional.

1. **Amazon Lightsail** - <https://aws.amazon.com/free/compute/lightsail>
<https://aws.amazon.com/lightsail/faq/>
 - a. **Cost:** \$3.50/month, 1 CPU, 512MB RAM, 20 GB Storage, 1 TB transfer, Not Verified → 1 Gbps
https://www.reddit.com/r/aws/comments/zssz78/lightsail_bandwidth_is_only_about_6_of_the/
 - b. **Linux Distributions:**
https://lightsail.aws.amazon.com/ls/docs/en_us/articles/compare-options-choose-lightsail-instance-image
<https://cdn.discordapp.com/attachments/556300450228338740/1146907724060299434/image.png>
 - i. Debian, Ubuntu supported (among others, but they are not supported by the script)
2. **Digital Ocean** - <https://www.digitalocean.com/pricing/droplets#basic-droplets>
 - a. **Cost:** \$4/month, 1vCPU, 512MB RAM, 10 GB storage, 500 GB transfer, 2 Gbps network in/out - [Speed Test](#)
<https://docs.digitalocean.com/products/droplets/details/limits>
 - b. **Linux Distributions:** <https://www.digitalocean.com/solutions/linux-hosting>
<https://www.digitalocean.com/products/droplets>
 - i. Debian, Fedora, Ubuntu supported (among others, but they are not supported by the script)
3. **Google Cloud Compute** - <https://cloud.google.com/compute/all-pricing> / [Billing per second](#)
 - a. **Cost:** \$7.81/month estimate, 0.25 - 2 vCPU, 1GB RAM, 10 GB storage, [Transfer Unknown](#) - may be limited only by your wallet, [2 Gbps in/out](#)
 - b. **Linux Distributions:** <https://cloud.google.com/compute/docs/images/os-details>
 - i. Debian, Ubuntu supported (and others like Fedora CoreOS, but they are not supported by the script)
4. **Hetzner** - <https://www.hetzner.com/cloud?country=us>
 - a. **Cost:** \$4.05/month (3.79 EUR), 2 vCPU, 4GB RAM, 40 GB storage, 20 TB transfer, 1 Gbps in/out
<https://docs.hetzner.com/robot/general/traffic> / <https://www.hetzner.com/news/traffic-limit>
 - b. **Linux Distributions:** <https://docs.hetzner.com/robot/dedicated-server/operating-systems/standard-images/>
 - i. Debian, Ubuntu supported (among others, but they are not supported by the script)
5. **Linode** - <https://www.linode.com/pricing/#compute-shared>
 - a. **Cost:** \$5/month, 1 vCPU, 1GB RAM, 25 GB storage, 1 TB transfer, 40 Gbps in, 1 Gbps out
 - b. **Linux Distributions:** <https://www.linode.com/distributions/>
 - i. Debian, Fedora, Ubuntu supported (among others, but they are not supported by the script)
6. **(Other options yet to be determined...)**

Overview with Pros and Cons

Disclaimer: I may not be able to foresee all possible security issues, and there is always a possibility that the server may become compromised by bad actors. Feedback is always welcome on [Github](#) or reach out to Bluestrings on the [Drawpile Discord](#). Please use strong, unique passwords and limit use of personal passwords/data where possible. If you're uncomfortable doing this by yourself, I strongly suggest that you reach out to an IT Security Professional.

7. Amazon Lightsail - <https://aws.amazon.com/free/compute/lightsail>

<https://aws.amazon.com/lightsail/faq/>

[2024-01-25 -- Announcing IPv6 instance bundles and pricing update on Amazon Lightsail](#)

- a. **Cost:** \$3.50/month, 1 CPU, 512 MB RAM, 20 GB Storage, 1 TB transfer, Not Verified → 1 Gbps
\$5/month starting May of 2024 for servers with both IPv4 and IPv6 (which you should have).

https://www.reddit.com/r/aws/comments/zssz78/lightsail_bandwidth_is_only_about_6_of_the/

- b. **Pros:** Blah

- c. **Cons:** Blah

- d. **Linux Distributions:**

https://lightsail.aws.amazon.com/ls/docs/en_us/articles/compare-options-choose-lightsail-instance-image

<https://cdn.discordapp.com/attachments/556300450228338740/1146907724060299434/image.png>

- i. Debian, Ubuntu supported (among others, but they are not supported by the script)

8. Digital Ocean - <https://www.digitalocean.com/pricing/droplets#basic-droplets>

- a. **Cost:** \$4/month, 1vCPU, 512 MB RAM, 10 GB storage, 500 GB transfer, 2 Gbps network in/out

<https://docs.digitalocean.com/products/droplets/details/limits>

- b. **Pros:**

- i. 60 day trial with \$200 credit to test it out.
- ii. CPU offering is much faster than Google Cloud Computer

- c. **Cons:**

- i. You may be required to use the Edge browser to successfully complete registration.
- ii. Network speed doesn't seem to perform well when trying to host a board with drawings for some reason

- d. **Linux Distributions:** <https://www.digitalocean.com/solutions/linux-hosting>

<https://www.digitalocean.com/products/droplets>

- i. Debian, Fedora, Ubuntu supported (among others, but they are not supported by the script)

9. Google Cloud Compute - <https://cloud.google.com/compute/all-pricing> / [Billing per second](#)

- a. **Cost:** \$7.81/month estimate, 0.25 - 2 vCPU, 1 GB RAM, 10 GB storage, [Transfer Unknown](#) - may be limited only by your wallet, [2 Gbps in/out](#)

- b. **Pros:** Blah

- i. Has a trial offering, [\\$300 to spend that is good for 90 days ONLY](#).
- ii. Has a [free use offering](#), provided you stay below their limits. Ideal only for small, private servers.
- iii.

- c. **Cons:**

- i. Exceeding [Free Tier limits](#) results in [charges](#) that can only be [emailed notifications](#). There are [ways to stop it automatically](#), but those require more technical expertise.
- ii. Setting up a machine is not suited for people with low technical expertise.
- iii. [Pricing system is complex](#), lot of variables to consider. [Spot VMs](#) are not reliable for cheaper costs.
- iv. Lowest tier option is pretty weak processor wise.

- d. **Linux Distributions:** <https://cloud.google.com/compute/docs/images/os-details>

- i. Debian, Ubuntu supported (and others like Fedora CoreOS, but they are not supported by the script)

10. Hetzner - <https://www.hetzner.com/cloud?country=us>

- a. **Cost:** \$4.05/month (3.79 EUR), 2 vCPU, 4 GB RAM, 40 GB storage, 20 TB transfer, 1 Gbps in/out

<https://docs.hetzner.com/robot/general/traffic> / <https://www.hetzner.com/news/traffic-limit>

b. Pros: Blah

c. Cons: Blah

d. Linux Distributions: <https://docs.hetzner.com/robot/dedicated-server/operating-systems/standard-images/>

i. Debian, Ubuntu supported (among others, but they are not supported by the script)

11. Linode - <https://www.linode.com/pricing/#compute-shared>

a. Cost: \$5/month, 1 vCPU, 1 GB RAM, 25 GB storage, 1 TB transfer, 40 Gbps in, 1 Gbps out

b. Pros: Blah

c. Cons: Blah

d. Linux Distributions: <https://www.linode.com/distributions/>

i. Debian, Fedora, Ubuntu supported (among others, but they are not supported by the script)

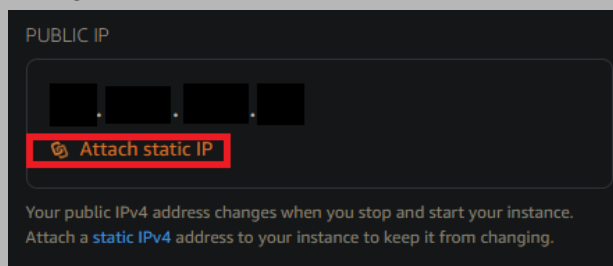
12. (Other options yet to be determined...)

Setting up your Cloud Server

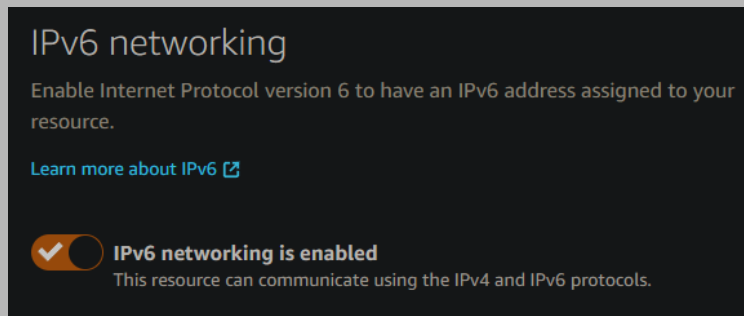
Disclaimer: I may not be able to foresee all possible security issues, and there is always a possibility that the server may become compromised by bad actors. Feedback is always welcome on [Github](#) or reach out to Bluestrings on the [Drawpile Discord](#). Please use strong, unique passwords and limit use of personal passwords/data where possible. If you're uncomfortable doing this by yourself, I strongly suggest that you reach out to an IT Security Professional.

1. Amazon Lightsail -

- Set the location nearest you in the upper right. You can also enable dark mode on that same page under the gear option.
- Using the search box in the upper left, type in "Lightsail" and click on the result. That should take you to the "Instances" page where you can select "Create Instance".
- With "Linux/Unix" selected under "Select a Platform", make sure "OS Only" is selected for "Select a blueprint". Debian and Ubuntu are the supported platforms that Amazon AWS provides. You can pick either "Ubuntu 22.04 LTS" or "Debian 12.4".
- Under "Choose your instance plan", set the option "Dual stack", as this is recommended to ensure all users can connect.
 - Note: Setting to "IPv6 only" will typically be cheaper per month to run (starting May 1, 2024), but users who still have IPv4 addresses will not be able to connect to the server.
- A little further down, still under the "Choose your instance plan" section which should be sorted by "Price per month" you can set your server hardware specifications. The "\$3.5" should be selected by default, but you can choose other options if you plan on having lots of people and sessions running at any given time.
- Under "Identify your instance", go ahead and name it "Drawpile" and click "Create Instance". You may need to wait a moment for it to complete.
- Let's configure the firewall and [set a static IP address](#) for our server. Click on your instance name you set earlier, and click on "Networking". Under the "IPv4" networking is "PUBLIC IP". There should be an option called "Attach Static IP", name it whatever you like, and click "Create and attach". That number should update/change, and I'll refer to it later as the "VM_IP_ADDRESS".



- IPv4
 - Scroll down to the "IPv4 firewall" section, and click "Add rule". For the Application, set "HTTPS" and click "Create".
 - Click "Add rule" again, and this time under "Application" set "Ping (ICMP)", and click "Create".
 - Now we have to click "Add rule" again, and under "Application" it should be set to "Custom" with the "Protocol" set to "TCP". For "Port or range", set the value to "27780" (without quotes) and hit "Create".
 - Click "Add rule" again, and this time under "Application" it should be set to "Custom" with the "Protocol" set to "TCP". For "Port or range", set the value to "27750" (without quotes) and hit "Create".
 - One last time, click "Add rule" again, and under "Application" it should be set to "Custom" with the "Protocol" set to "TCP". For "Port or range", set the value to "27751" (without quotes) and hit "Create".
- IPv6 - The option "This resource can communicate using the IPv4 and IPv6 protocols" should be enabled, with the button appearing like so:



1. Scroll down to the “IPv6 firewall” section, and click “Add rule”. Set the application to “Ping (ICMP)” and click “Create”
 2. Please note that there should be duplicate rules showing “SSH”, “HTTP”, “HTTPS”, and “Custom” with TCP port “27750”. If not, please add these rules here as well.
- h. [Lets set up PuTTY](#) and WinSCP. From the “Instances” page, click on your “Instance” by the name. You should be under the “Connect” section. Click the “Download default key” located near the bottom. DO NOT SHARE THE PRIVATE KEY WITH ANYONE. TREAT THIS LIKE YOU WOULD A KEY TO YOUR HOUSE OR OTHER VALUABLES!
- i. First, [we must convert this file type with PuTTYGen](#) to something that PuTTY can use. You can follow the steps in the link if you like, starting with “Step 3: Configure PuTTYgen with your Lightsail private key” or you can follow along.
 1. Open PuTTYgen, and click “Load”. Set the “File Type” menu which can be found in the lower right and should currently display “PUTTY Private Key Files (*.ppk)” to “All Files (*.*)”. You can click “Ok” to the prompt indicating it was successfully loaded.
 2. For extra security, set a passphrase to protect your private key under “Key passphrase” and “Confirm passphrase”.
 3. Click “Save private key”. If you choose not to set a passphrase, you’ll need to click “Yes” to bypass the message “Are you sure you want to save this key without a passphrase to protect it?”
 4. Set a filename that you can remember, and click Save. Close PuTTYgen.
 - ii. [Let’s configure PuTTY](#) now, open PuTTY. From the “Connect” section, copy your IP address (aka “VM_IP_ADDRESS”) just under “CONNECT TO” and paste it into the “Host Name (or IP address)” section.

Note: Amazon doesn’t indicate you can do this, but you can put the “USER NAME” beside the IP address on the web page, like this format USERNAME@IP_ADDRESS. For example, that could be “ubuntu@1.23.45.67” (without quotes).

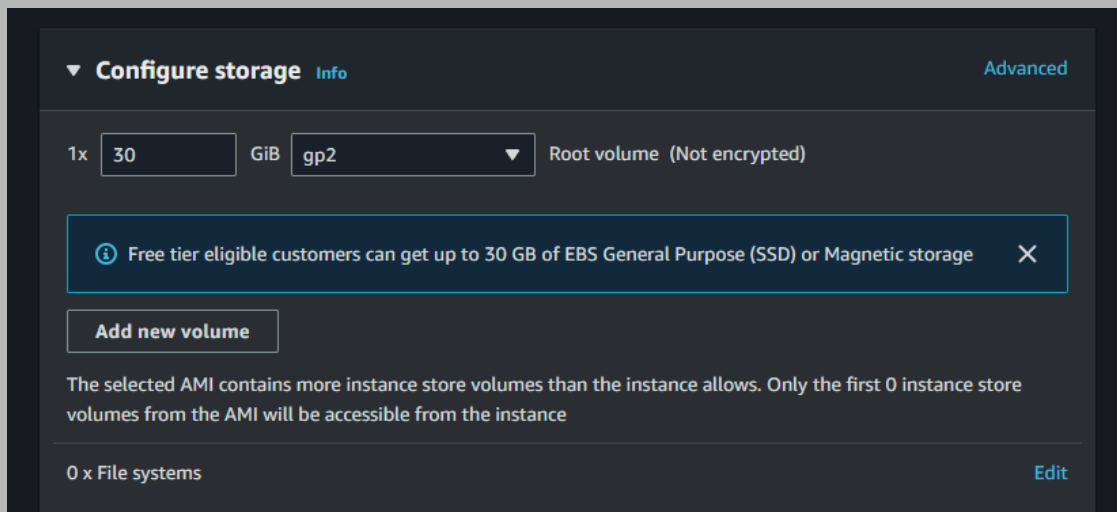
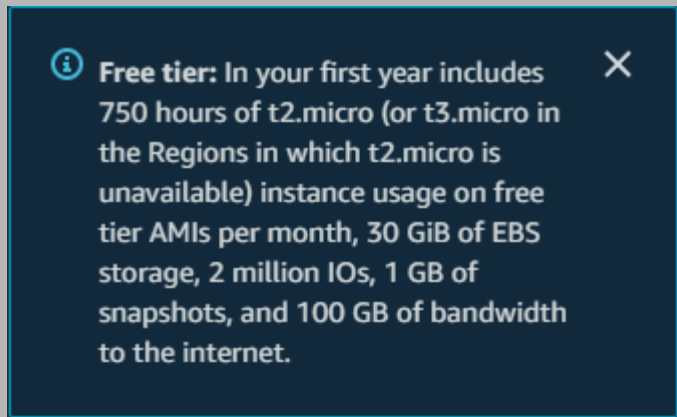
 1. Then on the left, under Connection, expand “SSH”, expand “Auth”, and click “Credentials”. Then click “Browse” for “Private key for authentication:” to set it to the private key you generated earlier.
 2. Also click on the “Window” header and set the “Lines of scrollbar” to 10000 instead of 2000 (so you can read back further in the history if something happens).
 3. Go back to “Session” on the left, and set the username to the “USER NAME” field found under “Connect”.
 - iii. Now that we’re done with that, let’s set up WinSCP. Open the software. “File protocol” should be set to “SFTP” and “Port number” should be set to 22 by default, so don’t touch those settings. Set the “VM_IP_ADDRESS” that you noted down earlier for the VM. In “User Name” box, type the user name found just below “USER NAME” on the web page. Leave the Password field blank.
 1. Click the “Advanced Button”, and under the “SSH” section you can click on “Authentication”. Under “Private key file:”, select the three dot menu in the white box just below that to navigate to the private SSH key you generated earlier. Click “OK”.
 2. Once you’re done, click “Save” and set an easy to remember site name (or use the provided name).

3. Test the connection by clicking “Login”. Once you’re done, you should be connected with the same key and use that to be able to transfer files to and from your computer or the server as desired.
- i. Finally, run the script! Run the following commands after connecting to the server.

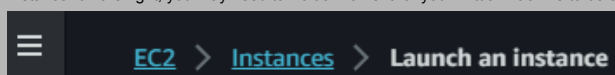

```
wget -q --show-progress
https://raw.githubusercontent.com/Wade821/PiDrawpile/master/testing/drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2

chmod 770 drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2

./drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```
- j. Try connecting to your new server! Should be ready to run! 😊
- k. **Probably gonna delete this stuff since it’s not lightsail, Imao** -- Scroll down to the “Build a solution” section and select “Launch a virtual machine with EC2 (2 mins)”.
 - l. Set a name for your server. Under the “Quick Start”, ensure you have Ubuntu or Debian selected and that “Amazon Machine Image (AMI)” has “Free tier eligible” noted in the upper right. If you leave it on “64-bit (x86)”, the “Instance type” section should default to “t2.micro” with “Free tier eligible” noted in the upper right.
 - m. Under “Key pair (login)”, click on “Create new key pair”. Set a name, leave “RSA” selected for the “Key pair type”, and make sure “Private key file format” is set to “.ppk” since we’ll be using PuTTY. Click “Create key pair”. You’ll get a download for this file. Store it SOMEWHERE SAFE. DO NOT SHARE THE PRIVATE KEY WITH ANYONE. TREAT THIS LIKE YOU WOULD A KEY TO YOUR HOUSE OR OTHER VALUABLES!
 - n. Under “Network settings”, you can choose to leave most settings to defaults.
 - i. You’ll want to check the “Allow SSH traffic from” section. If you’re using it from home where you’ll be most of the time, you may want to change the box beside it from “Anywhere” to “My IP”. This enhances the security of your box further, but may make it inaccessible via SSH from other locations. At that point however, you could just log in online to the website to manage the account as necessary.
 - ii. Enable both options below that.
 1. “Allow HTTPS traffic from the internet”
 2. “Allow HTTP traffic from the internet”
 - o. Under “Configure storage”, use the arrows that appear when you hover over the box between “1x” and “GiB” to increase it to 30 GB, since that is allowed under the free tier (per the notification that should be just under that box”.



- p. Expand the “Advanced details” box and scroll down to “Credit specification” and set the value to “Standard”. This helps avoid unexpected charges by avoiding excessive CPU usage (which shouldn’t be an issue anyway since Drawpile is not CPU intensive once it is fully set up).
- q. Click “Launch instance” on the right, you may need to wait a moment for your virtual machine to be created. Click on the “Instances” hyperlink or click on the hamburger menu to get to “Instances”.



- r. When you select your instance, there should be a section populated at the bottom which has your “Public IPv4” address. Make a note of this information.

- s. **Probably gonna delete this stuff above since it’s not lightsail, Imao**

t. Useful Resources

2. Digital Ocean - You may need to use the Edge browser to get this working past initial question prompt.

- a. After setting up your account, click "[Deploy a virtual machine](#)" from the welcome page.
 - i. Select a "Region" and "Datacenter" closest to you for performance reasons.
 - ii. For the "Choose an image" option, you can select Ubuntu, Fedora, or Debian. Always select the latest version of the operating system.
 - iii. For "Choose Size", ensure "Basic" is selected, and then choose "Regular" for the "CPU" options. From there, you should be able to click the "Arrow" on the left to reveal the \$4/month plan.
 - iv. For "Choose Authentication Method", choose "SSH Key". Digital Ocean provides instructions for setting up with [PuTTYGen](#). If you haven't already, set up [an SSH client](#) to connect to the server. If you have Windows, you can get started by getting [PuTTY](#) (SSH connection) and [WinSCP](#) (uses SSH for file transfers) through [Ninite.com](#) (installs both without prompts to guide through install, fast and easy, always gets the latest content). The advantage is you can configure settings to keep the connection alive over using the web SSH client, as you may get disconnected for being inactive (or during portions of the script that may take a long time to complete, thought to be 10 minutes but unconfirmed.).
 1. Open PuTTYGen. Leaving options to the default with RSA selected, move your mouse randomly over the blank area to generate some randomness with the security key.
 2. Fill out "Key passphrase" and "Confirm passphrase" with something that is AT LEAST 12 characters long.
 3. Copy the data listed under "Public key for pasting into OpenSSH authorized_keys file:"
 - a. Paste this information in the "SSH key content" box, name it something obvious like "My SSH Key". Then click "Add SSH Key".
 - b. Make sure to save the public and private keys to your computer. DO NOT SHARE THE PRIVATE KEY WITH ANYONE. TREAT THIS LIKE YOU WOULD A KEY TO YOUR HOUSE OR OTHER VALUABLES!
 - v. I suggest checking the box "Add improved metrics monitoring and alerting (free)", in order to get a better feel for how your system is performing.
 - vi. Click on "Advanced Options", and make sure to "Enable IPv6 (free)".
 - vii. Click "Create Droplet"
- b. Once that is complete, make a note of the IPv4 address listed beside the droplet's name, which should look something similar to a.b.c.d (where the letters a through d can be any number 0 through 255, like 147.182.245.24 for example). There should be a "copy" button that appears beside it when you hover over it. I'll refer to this as VM_IP_ADDRESS later in these instructions.
 - i. We should first set up [PuTTY](#) and WinSCP. Once PuTTY is open, paste in the IPv4 address you copied earlier in the "Host Name (or VM_IP_ADDRESS)" box. Then on the left, under Connection, click "SSH" and verify the "SSH protocol version" is set to "2". Then expand "Auth" and "Credentials". Then click "Browse" for "Private key for authentication:" to set it to the private key you generated earlier.
 1. Then under the "Connection" header on the left, select "Data". Make sure "Auto-login username" is set to "root" (without quotes). Also click on the "Window" header and set the "Lines of scrollbar" to 10000 instead of 2000 (so you can read back further in the history if something happens).
 2. Go back to "Session" on the upper left, and name it something memorable under "Saved Sessions", like "Digital Ocean Droplet VM" and hit save. This will make it so you don't have to set this up again in the future.
 3. Click "Open". You need to enter your passphrase you created earlier. This should enable connectivity to your VM via PuTTY Software.
 - ii. Assuming WinSCP is installed, open the software. "File protocol" should be set to "SFTP" and "Port number" should be set to 22 by default, so don't touch those settings. Set the "VM_IP_ADDRESS"

that you noted down earlier for the VM. In “User Name” box, type “root” (without quotes), but leave the Password field blank.

1. Click the “Advanced Button”, and under the “SSH” section you can click on “Authentication”. Under “Private key file:”, select the three dot menu in the white box just below that to navigate to the private SSH key you generated earlier. Click “OK”.
 2. Once you’re done, click “Save” and set an easy to remember site name (or use the provided name).
 3. Test the connection by clicking “Login”. Once you’re done, you should be connected with the same key and use that to be able to transfer files to and from your computer or the server as desired.
- c. On the left, go to “Networking”, “Firewalls”, and select “Create Firewall”. Name it whatever you like. Create the following set of rules
- i. Inbound

1. SSH	TCP	22	“All IPv4” and “All IPv6”
2. HTTP	TCP	80	“All IPv4” and “All IPv6”
3. HTTPS	TCP	443	“All IPv4” and “All IPv6”
4. Custom	TCP	27750	“All IPv4” and “All IPv6”
5. Custom	TCP	27751	“All IPv4” and “All IPv6”
6. Custom	TCP	27780	“All IPv4” and “All IPv6”
7. ICMP	ICMP		“All IPv4” and “All IPv6”
 - ii. Outbound - shouldn’t need modification. Default options are very permissive, defaults listed below.

1. ICMP	ICMP		“All IPv4” and “All IPv6”
2. All TCP	TCP	All ports	“All IPv4” and “All IPv6”
3. All UDP	UDP	All ports	“All IPv4” and “All IPv6”
- d. Then make sure to type in “first” for “First Project” to select your droplet, and “Create Firewall”. This is done for security reasons. You can always adjust these options later.
- e. Finally, run the script! Run the following commands after connecting to the server.
- ```
wget -q --show-progress
https://raw.githubusercontent.com/Wade821/PiDrawpile/master/testing/drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2

chmod 770 drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2

./drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```
- f. Try connecting to your new server! Should be ready to run! 😊
- g. Useful Resources
- 3. Google Cloud Compute -**
- a. Once on the welcome landing page, scroll down and select “Create a VM” under “Products”.

Welcome, [REDACTED]

**You're in Free Trial**

0 out of \$300 credits used  
Expires December 19, 2023  
[What happens when trial ends?](#)  
[ACTIVATE FULL ACCOUNT](#)

You're working on project [My First Project](#)

Number: 514532420859 ID: white-ground-399603

[Add people to your project](#)  
[Set up budget alerts](#)  
[Review product spend](#)

Try Generative AI Studio - Prompt, tune, and deploy Google's text, image, code, and speech foundation models [→](#)

## Recommended based on your interest in General

Pre-built solution templates

- Deploy a three-tier web app**  
Web app, rich media site, ecommerce website, database-backed website
- Deploy load balanced managed VMs**  
Data analysis, data pipeline, application logs, log management, log intelligence
- Create a data warehouse with BigQuery**  
Data warehouse, dashboards, ETL, analytics, data analysis

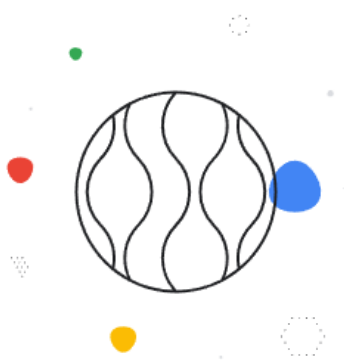
[View all Solutions](#)

Products

- Create a VM**  
Compute Engine
- Train and host ML models**  
Vertex AI
- Create a database**  
Cloud SQL
- Analyze and manage data**  
BigQuery

- b. You should be taken to the “VM instances” page, which also should have nothing listed. Click one of the “Create Instance” buttons.

VM instances [+ CREATE INSTANCE](#) [IMPORT VM](#) [REFRESH](#)



## VM Instances

Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample app.

[CREATE INSTANCE](#) [TAKE THE QUICKSTART](#)

- c. Setting up your VM

- i. Feel free to set the name to whatever you like, this is not important for the server other than knowing what the server is used for since you can create multiple virtual machines.
- ii. Next, select a region and zone. Preferably, the region and zone closest to you for optimal speed and connectivity.
- iii. For the “Machine Configuration”, the cheapest option should be the “E2” series under “General Purpose”. Once you select that, there’s an option under “Machine type” where “Preset” is selected. The “e2-micro” should be sufficient for a small server and is best for starting out.

| Filter Instance sizes |                                                      |
|-----------------------|------------------------------------------------------|
| Shared-core           | e2-micro<br>0.25-2 vCPU (1 shared core), 1 GB memory |
| Standard              | e2-small<br>0.5-2 vCPU (1 shared core), 2 GB memory  |
| High memory           | e2-medium<br>1-2 vCPU (1 shared core), 4 GB memory   |
| High CPU              |                                                      |

- iv. For the “Availability Policies”, leave it on “Standard”.
  1. While “[Spot](#)” will give you a discount, the server will not always be available and may suddenly become unavailable. And unless you’re planning on using “File Backed Sessions” when setting up the server, data will be lost when it is pulled offline without warning.
- v. Expand the section for “VM Provisioning Model Advanced Settings”. It is suggested to set the option “On host maintenance” to “Migrate VM Instance (Recommended)” if not set and have the option “Automatic Restart” set to “On (recommended)”.
- vi. *Optional - Confidential VM Service* - This will enable encryption to keep private data private, since it would prevent those with access at Google to see the server data. However, this option requires a different CPU (about \$60 more expensive per month) and requires the server to shut down during maintenance.
- vii. The “Boot disk” section has an option “Change”, which can be used to change the variety of Linux you’re using.
  1. Debian, Fedora, and Ubuntu are supported for the script. Always choose the latest version of the operating system for security reasons. The CPU architecture of “x86/64” or “Arm64” should not matter since the script compiles from source code.
  2. The “Boot disk type” should work fine with “Balanced persistent disk”, but “SSD persistent disk” should bring overall faster performance (slight cost increase for same size) and is better if you expect your server to be busy AND/OR plan on using file backed sessions with the server.
- viii. Under “Firewall”, section...since the server will provide a web page for users to connect to and to handle server administration, you should enable “Allow HTTP traffic” and “Allow HTTPS traffic”.
- ix. *Optional - “Observability”* - It is suggested to select “[Install Ops Agent for Monitoring and Logging](#)”, since this would provide you information about the server use. If it seems slow, accessing this information can help you determine what exactly should be upgraded. If you don’t plan on having a big server, then leave it off. There [are charges for logging beyond certain size limits or data retained beyond 30 days](#), however, most users will probably not exceed that level of logging with normal usage on small servers.
- x. Finally, expand “Advanced Options”.
  1. Expand “Security”, and enable “Turn on Secure Boot”. The options “Turn on vTPM” and “Turn on Integrity Monitoring” should be on by default and left that way for security reasons.
  2. If you decided to enable the optional “*Confidential VM Service*” from earlier (step vi), then expand “Management”, towards the bottom of that section is an option called “Customer Managed Encryption Key (CMEK) revocation policy”. This option should be set to “Shut down

(recommended)", in order to prevent data loss from the machine continuing to operate without being able to write data to the storage medium.

- xi. Click "Create". Once created, you should get an "External IP" address. If you purchased your domain, be sure to make a note of that information (which I'll call VM\_IP\_ADDRESS) as you'll need it to set up a DNS record pointing at your virtual machine.
  1. Unfortunately if it fails to initialize due to lack of availability, you may need to re-create an instance but selecting a new location.
- d. Once you have a VM ready, we should set up [an SSH client](#) to connect to the server. If you have Windows, you can get started by getting [PuTTY](#) (SSH connection) and [WinSCP](#) (uses SSH for file transfers) through [Ninite.com](#) (installs both without prompts to guide through install, fast and easy, always gets the latest content). The advantage is you can configure settings to keep the connection alive over using the web SSH client, as you may get disconnected for being inactive (or during portions of the script that may take a long time to complete, thought to be 10 minutes but unconfirmed. ).
  - i. Generate a SSH key with PuTTY.
    1. Open PuTTYGen. Leaving options to the default with RSA selected, move your mouse randomly over the blank area to generate some randomness with the security key.
    2. Change "key comment" to reflect your username.
    3. Fill out "Key passphrase" and "Confirm passphrase" with something that is AT LEAST 12 characters long.
    4. Copy the data listed under "Public key for pasting into OpenSSH authorized\_keys file:"
      - a. Go to edit your VM settings, where you can paste this information under "Security and Access" and click "Add Item". Hit enter when value is pasted in.
      - b. Make sure to save the public and private keys to your computer. DO NOT SHARE THE PRIVATE KEY WITH ANYONE. TREAT THIS LIKE YOU WOULD A KEY TO YOUR HOUSE OR OTHER VALUABLES!
    5. In PuTTY, go ahead and put your USERNAME@VM\_IP\_ADDRESS in the "Host Name (or IP address)" box. Then on the left, under Connection, expand "SSH", expand "Auth", and click "Credentials". Then click "Browse" for "Private key for authentication:" to set it to the private key you generated earlier. Also click on the "Window" header and set the "Lines of scrollbar" to 10000 instead of 2000 (so you can read back further in the history if something happens).
    6. Go back to "Session" on the upper left, and name it something memorable under "Saved Sessions", like "Google Compute VM" and hit save. This will make it so you don't have to set this up again in the future.
    7. Click "Open". You need to enter your passphrase you created earlier. This should enable connectivity to your VM via PuTTY Software.
  - ii. **IGNORE THIS OPTION BELOW FOR NOW** Generate a [SSH key first](#) with Windows 10. If you're using Windows 8 or earlier, you should [consult these instructions](#).
    1. It'll ask for the username on the VM machine. Edit the command below and paste it into the command prompt to generate a key (Windows key + R, type 'cmd' without quotes, hit enter)
 

```
ssh-keygen -t rsa -f C:\Users\%username%\ssh\drawpile-ssh -C USERNAME -b 2048
```

      - %username% is your account name in Windows. Can type "echo %username%" in the command prompt to check the value, or use the environment variable if you wish it to fill it out automatically.
      - USERNAME is the username ON the virtual machine.
    2. Enter a passphrase, and make a note of it somewhere secure, like a password manager or secured/locked up notebook. Navigate to the location that the CMD mentioned, and open 'drawpile-ssh.pub'. The line should start with "ssh-rsa", select and copy everything.
    3. To [add the SSH key](#), on the [Metadata](#) page, select your Project, click "SSH keys" tab, then click "ADD SSH KEY". Paste in the value you copied earlier, and hit enter.
- e. Once done with that, let's [set up WinSCP with Google Compute](#). The advantage of using this software is that you can upload or download multiple files from the server. This is useful for downloading session recordings (assuming you will have the server set to make them or use file backed sessions with archive turned on) or uploading images to be used by the list server! While the Google Web SSH client can upload multiple files at once, it can only download one file at a time. So this is pretty much a must in terms of configuration.

- i. Assuming WinSCP is installed, open the software. "File protocol" should be set to "SFTP" and "Port number" should be set to 22 by default, so don't touch those settings. Set the "VM\_IP\_ADDRESS" that you noted down earlier for the VM. Use the same "username" that you also used when setting up SSH, but leave the Password field blank.
  - ii. Click the "Advanced Button", and under the "SSH" section you can click on "Authentication". Under "Private key file:", select the three dot menu in the white box just below that to navigate to the private SSH key you generated earlier. Click "OK".
  - iii. Once you're done, click "Save" and set an easy to remember site name (or use the provided name).
  - iv. Test the connection by clicking "Login". Once you're done, you should be connected with the same key and use that to be able to transfer files to and from your computer or the server as desired.
- f. Finally, run the script! Run the following commands after connecting to the server.

```
wget -q --show-progress
```

```
https://raw.githubusercontent.com/Wade821/PiDrawpile/master/testing/drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

```
chmod 770 drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

```
./drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

g. Configure Firewall

- i. From the "VM Instances" page, select ["Set up Firewall Rules"](#), then select "Create Firewall Rule". We'll have to do this 2 times (1 ingress rule and 1 egress rule, will eventually need 2 more when IPv6 is made fully available)
  1. Name your first rule "drawpile-srv". You can configure the "Priority" value to 100 (this ensures Drawpile client traffic is handled first). Then verify "Direction of Traffic" is set to "Ingress" and "Action on match" is set to "Allow. Option "Targets" can be set to "All instances in the network", with "Source Filter" set to "IPv4 ranges". To allow all IPv4 addresses to connect to the server, in the "Source IPv4 Ranges" box we need to write the value ["0.0.0.0/0"](#) (without quotes). Under "Protocols and ports", ensure "Specified protocols and ports" is selected, then check "TCP", and add "27750" (without quotes) to the "Ports" section just below that. It is IMPORTANT that this number is correctly configured. Hit "Create".
  2. Name your first rule "drawpile-srv-web". You can configure the "Priority" value to 100 (this ensures Drawpile client traffic is handled first). Then verify "Direction of Traffic" is set to "Ingress" and "Action on match" is set to "Allow. Option "Targets" can be set to "All instances in the network", with "Source Filter" set to "IPv4 ranges". To allow all IPv4 addresses to connect to the server, in the "Source IPv4 Ranges" box we need to write the value ["0.0.0.0/0"](#) (without quotes). Under "Protocols and ports", ensure "Specified protocols and ports" is selected, then check "TCP", and add "27751" (without quotes) to the "Ports" section just below that. It is IMPORTANT that this number is correctly configured. Hit "Create".
  3. Name your first rule "drawpile-srv-admin". You can configure the "Priority" value to 100 (this ensures Drawpile client traffic is handled first). Then verify "Direction of Traffic" is set to "Ingress" and "Action on match" is set to "Allow. Option "Targets" can be set to "All instances in the network", with "Source Filter" set to "IPv4 ranges". To allow all IPv4 addresses to connect to the server, in the "Source IPv4 Ranges" box we need to write the value ["0.0.0.0/0"](#) (without quotes). Under "Protocols and ports", ensure "Specified protocols and ports" is selected, then check "TCP", and add "27780" (without quotes) to the "Ports" section just below that. It is IMPORTANT that this number is correctly configured. Hit "Create".
  4. **IGNORE THIS OPTION BELOW FOR NOW** Name your second rule "drawpile-srv-ipv6". You can configure the "Priority" value to 100 (this ensures Drawpile client traffic is handled first). Then verify "Direction of Traffic" is set to "Ingress" and "Action on match" is set to "Allow. Option "Targets" can be set to "All instances in the network", with "Source Filter" set to "IPv6 ranges". To allow all IPv6 addresses to connect to the server, in the "Source IPv6 Ranges" box we need to write the value ["::/0"](#) (without quotes). Under "Protocols and ports", ensure "Specified protocols and ports" is selected, then check "TCP", and add "27750" (without quotes) to the "Ports" section just below that. It is IMPORTANT that this number is correctly configured. Hit "Create".

**IGNORE THIS OPTION ABOVE FOR NOW**

5. Name this rule “drawpile-srv-out”. You can configure the “Priority” value to 110 (this ensures Drawpile client traffic is handled first). Then verify “Direction of Traffic” is set to “Egress” and “Action on match” is set to “Allow. Option “Targets” can be set to “All instances in the network”, with “Source Filter” set to “IPv4 ranges”. To allow all IPv4 addresses to connect to the server, in the “Source IPv4 Ranges” box we need to write the value “[0.0.0.0/0](#)” (without quotes). Under “Protocols and ports”, ensure “Specified protocols and ports” is selected, then check “TCP”, and add “27750” (without quotes) to the “Ports” section just below that. It is IMPORTANT that this number is correctly configured. Hit “Create”.
6. Name this rule “drawpile-srv-web-out”. You can configure the “Priority” value to 110 (this ensures Drawpile client traffic is handled first). Then verify “Direction of Traffic” is set to “Egress” and “Action on match” is set to “Allow. Option “Targets” can be set to “All instances in the network”, with “Source Filter” set to “IPv4 ranges”. To allow all IPv4 addresses to connect to the server, in the “Source IPv4 Ranges” box we need to write the value “[0.0.0.0/0](#)” (without quotes). Under “Protocols and ports”, ensure “Specified protocols and ports” is selected, then check “TCP”, and add “27751” (without quotes) to the “Ports” section just below that. It is IMPORTANT that this number is correctly configured. Hit “Create”.
7. Name this rule “drawpile-srv-adminout”. You can configure the “Priority” value to 110 (this ensures Drawpile client traffic is handled first). Then verify “Direction of Traffic” is set to “Egress” and “Action on match” is set to “Allow. Option “Targets” can be set to “All instances in the network”, with “Source Filter” set to “IPv4 ranges”. To allow all IPv4 addresses to connect to the server, in the “Source IPv4 Ranges” box we need to write the value “[0.0.0.0/0](#)” (without quotes). Under “Protocols and ports”, ensure “Specified protocols and ports” is selected, then check “TCP”, and add “27780” (without quotes) to the “Ports” section just below that. It is IMPORTANT that this number is correctly configured. Hit “Create”.
- ii. You could create another rule to allow port “8081” as TCP in order to use the non web admin interface, but this is not recommended to use as it may interfere with settings configured in web admin.

h. Try connecting to your new server! Should be ready to run! 😊

i. Useful Resources

i. Cloud Ops Agent - System Monitoring and Details

1. [Monitoring compute infrastructure with the Cloud Ops Agent](#)
2. <https://cloud.google.com/stackdriver/docs/solutions/agents/ops-agent/install-index>
3. <https://cloud.google.com/logging/docs/agent/ops-agent/install-agent-vm-creation>

ii. Create and manage disk snapshots - backups

1. <https://cloud.google.com/compute/docs/disks/create-snapshots>

iii.

#### 4. Hetzner - <https://www.hetzner.com/cloud?country=us>

- a. Click “New Project” from the [cloud console page](#). Set a name for your project, then click “Add project”. Then click “CREATE SERVER” that appears just below your project.
- b. For the location, it is usually ideal to pick a location closest to you. However, server type may not be available near you at a lower cost per month.
- c. For the “Image”, we’ll want to use Ubuntu, Fedora, or Debian.
- d. For Type, we’re looking for a “Shared vCPU” (assuming we want the cheapest available), so we’ll select the “Arm65 (Ampere)” option, and then “CAX11” for the lowest end system available.
- e. The “Networking” section should have “Public IPv4” and “Public IPv6”. Failure to enable both options may mean some users cannot connect. You do not need to select “Private Networks”.
- f. For the “SSH keys” section, we’ll want to generate a key using PuTTYgen in order to securely connect to our server. It is \*NOT\* recommended to proceed without creating an SSH key.
  - i. Open PuTTYGen. Leaving options to the default with RSA selected, move your mouse randomly over the blank area to generate some randomness with the security key.

- ii. Change “key comment” to reflect your username ON THE SERVER TO BE CREATED, which should be “root” (without quotes).
- iii. Fill out “Key passphrase” and “Confirm passphrase” with something that is AT LEAST 12 characters long.
- iv. Copy the data listed under “Public key for pasting into OpenSSH authorized\_keys file:”
  1. Go to back to Hetzner and click on “Add SSH key”, paste in the value under the “SSH key” box. Leave the “Name” and click “Add SSH key”. Note that you do not need to click “Set as default key” unless you want to create other servers with this same key
  2. Make sure to save the public and private keys to your computer. DO NOT SHARE THE PRIVATE KEY WITH ANYONE. TREAT THIS LIKE YOU WOULD A KEY TO YOUR HOUSE OR OTHER VALUABLES!
- g. Scroll down to the bottom and set a name for your server. Then click “Create & Buy now” in the lower right. It shouldn’t take long to provision.
- h. Once it’s created, go to the left side and click on “Firewalls”, then click “Create Firewall”. We should have two default rules show up, but we’ll need to create four more. All rules should be set to “Any IPv4” and “Any IPv6” (though for security reasons, you may elect to change the rule for SSH to your home IP address). All the rules we need should appear as following below:

|       | <b>Add Description</b> | <b>Protocol</b> | <b>Port</b> |
|-------|------------------------|-----------------|-------------|
| i.    | SSH                    | TCP             | 22          |
| ii.   | Network Diagnostics    | ICMP            |             |
| iii.  | Server Web Page        | TCP             | 80          |
| iv.   | Secure Server Web Page | TCP             | 443         |
| v.    | Server Connection      | TCP             | 27750       |
| vi.   | Server Connection      | TCP             | 27751       |
| vii.  | Server Connection      | TCP             | 27780       |
| viii. | Server Admin           | TCP             | 8081        |

**Note:** This uses “8081” instead of “27780”, because NGINX will handle it via reverse proxy.

- i. We do not need to create any “Outbound rules”. Under the “Apply to” section, click “Select Resources”, “Server”, and then the server you made earlier. Click the button “Apply to 1 Server”. You can choose to name your firewall settings something like “Drawpile Firewall” or leave it at the default setting. Click “Create Firewall”.
- j. Once completed, we’re almost ready to start installation of the Drawpile server, but we need to configure PuTTY to connect to the server. Go back to the “Servers” section on the left and make a note of the IPv4 address listed under “Public IP” the first one should be the IPv4, which should look something similar to a.b.c.d (where the letters a through d can be any number 0 through 255, like 147.182.245.24 for example). Click the IP address itself to copy it. I’ll refer to this as VM\_IP\_ADDRESS later in these instructions.
  - i. We should first set up [PuTTY and WinSCP](#). Once [PuTTY](#) is open, paste in the IPv4 address you copied earlier in the “Host Name (or VM\_IP\_ADDRESS)” box. Put the username in front of that, so that it appears like “root@VM\_IP\_ADDRESS” (without quotes, and should appear something similar to “root@148.123.62.184”). Under the “Window” section on the left, set the “Lines of scrollbar” to “10000” (without quotes). Then expand “Auth” and “Credentials”. Then click “Browse” for “Private key for authentication:” to set it to the private key you generated earlier and saved to your computer with PuTTYgen.
    1. Go back to “Session” on the upper left, and name it something memorable under “Saved Sessions”, like “Hetzner VM” and hit save. This will make it so you don’t have to set this up again in the future.
    2. Click “Open”. You need to enter your passphrase you created earlier. This should enable connectivity to your VM via PuTTY Software.
- k. Once done with that, let’s set up [WinSCP](#). The advantage of using this software is that you can upload or download multiple files from the server. This is useful for downloading session recordings (assuming you will

have the server set to make them or use file backed sessions with archive turned on) or uploading images to be used by the list server! So this is pretty much a must in terms of configuration.

- i. Assuming WinSCP is installed, open the software. “File protocol” should be set to “SFTP” and “Port number” should be set to 22 by default, so don’t touch those settings. Set the “VM\_IP\_ADDRESS” that you noted down earlier for the VM. Use the same “username” that you also used when setting up SSH, but leave the Password field blank.
  - ii. Click the “Advanced Button”, and under the “SSH” section you can click on “Authentication”. Under “Private key file:”, select the three dot menu in the white box just below that to navigate to the private SSH key you generated earlier. Click “OK”.
  - iii. Once you’re done, click “Save” and set an easy to remember site name (or use the provided name).
  - iv. Test the connection by clicking “Login”. Once you’re done, you should be connected with the same key and use that to be able to transfer files to and from your computer or the server as desired.
- I. Finally, run the script! Run the following commands after connecting to the server.
- ```
wget -q --show-progress
https://raw.githubusercontent.com/Wade821/PiDrawpile/master/testing/drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

```
chmod 770 drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

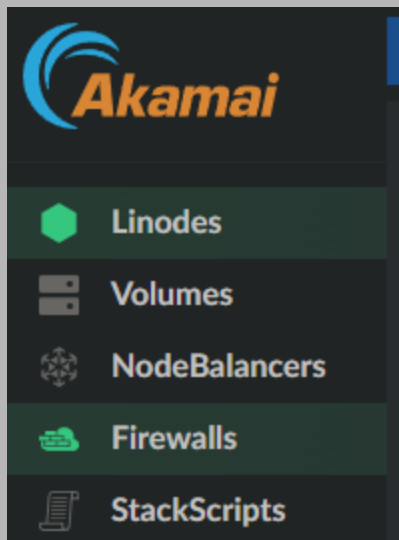
```
./drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

- m. Once the script is completed, you should be able to immediately connect to your new Drawpile server.
 - i. There is a section at the end generated called “My Server Information”, to make it easier for you to quickly copy all the relevant server information for safe keeping. With PuTTY, all you have to do is select it and it will automatically be copied to the clipboard. Open a notepad (or other document) and paste it in with Ctrl + V.
- n. Useful Resources
 - i. SSH - <https://docs.hetzner.com/robot/dedicated-server/security/ssh>

5. Linode - <https://www.linode.com/pricing/#compute-shared>

- a. Once you’re signed up, the first page you’re on should say “Linodes”. Click “Create Linode”.
- b. For your distribution, you can pick Debian, Fedora, or Ubuntu. Usually best practice to pick the newest version of the operating system.
- c. For Linode Plan section, you’ll probably want to pick the “Shared CPU” section, and pick the cheapest monthly plan which should be “Nanode 1 GB” at \$5 a month.
- d. Next, set a name under “Linode Label”. Something like “drawpile” would be fine, or whatever you like.
- e. Set a strong password under “Root Password”. I recommend 12 characters long at absolute minimum, however 14 or longer is the recommended length.
- f. Under “SSH Keys”, click “Add An SSH Key”.
 - i. Open PuTTYGen. Leaving options to the default with RSA selected, move your mouse randomly over the blank area to generate some randomness with the security key.
 - ii. Change “key comment” to reflect your username ON THE SERVER TO BE CREATED, which should be “root” (without quotes).
 - iii. Fill out “Key passphrase” and “Confirm passphrase” with something that is AT LEAST 12 characters long.
 - iv. Copy the data listed under “Public key for pasting into OpenSSH authorized_keys file:”
 1. Go back to Linode and paste this information under “SSH Public Key”. Click “Add Key”.
 2. Make sure to save the public and private keys to your computer. DO NOT SHARE THE PRIVATE KEY WITH ANYONE. TREAT THIS LIKE YOU WOULD A KEY TO YOUR HOUSE OR OTHER VALUABLES!
- g. Click the “Checkbox” beside your username to attach the SSH key you just made. Then click “Create Linode” at the bottom.

- h. Once the instance is ready, click on the “firewall” link on the left, then click “Create Firewall”. Assign any label you like, “Drawpile” should suffice though, and then select your Linode you just created. Then click on your firewall link under the “Label” column. Click “Create Firewall” and then open your new firewall policy. For the “Default inbound policy” should be set to “drop” and “Default outbound policy” should be set to “Allow”, as this provides security for our server by limiting access to only the bare minimum that is required for communication.



- i. Click “Add An Inbound Rule”, select the preset “SSH”. As an additional security measure, under “Sources (required)”, you can set it to “IP / Netmask”. Go to Google and search “What is my IP address”. You should get a number separated by periods, copy that, and paste it into the field on Linode. If this number is not correct, you will not be able to use PuTTY to connect to the server! Then click “Add Rule”.
1. Repeat this for additional presets including “HTTP” and “HTTPS”.
 2. Click “Add An Inbound Rule”, and this time create a custom label called “Drawpile”. The “Description” box can be labeled “Drawpile-srv connections”. Select TCP for the protocol. For “Ports”, select “Custom” and then under the “Custom Port Range”, type 27750. For “Sources (required)”, set that to “All IPv4, All IPv6”. The “Action” at the bottom should be set to “Accept”. Then click “Add Rule.”
 3. Click “Add An Inbound Rule”, and this time create a custom label called “Drawpile Admin”. The “Description” box can be labeled “Drawpile-srv connections”. Select TCP for the protocol. For “Ports”, select “Custom” and then under the “Custom Port Range”, type 8081 (**Note:** this uses 8081 instead of 27780 because of the reverse proxy handled by NGINX). For “Sources (required)”, set that to “All IPv4, All IPv6”. The “Action” at the bottom should be set to “Accept”. Then click “Add Rule.”
 4. Click “Add An Inbound Rule”, and this time ignore the preset option. Instead, create a custom label called “ICMP”. The “Description” box can be left blank. For “Ports”, select “ICMP”. For “Sources (required)”, set that to “All IPv4, All IPv6”. The “Action” at the bottom should be set to “Accept”. Then click “Add Rule.”
 5. Now that we have that part done, let’s hit “Save Changes” so we don’t lose the work we’ve done.
- ii. We’re not going to add any Outbound rules, so go back to your Linodes page and open your Instance.
- iii. Make a note of the IPv4 address listed under “IP Addresses, the first one should be the IPv4, which should look something similar to a.b.c.d (where the letters a through d can be any number 0 through 255, like 147.182.245.24 for example). There should be a “copy” button that appears beside it when you hover over it. I’ll refer to this as VM_IP_ADDRESS later in these instructions.

1. We should first set up [PuTTY and WinSCP](#). Once [PuTTY](#) is open, paste in the IPv4 address you copied earlier in the “Host Name (or VM_IP_ADDRESS)” box. Then on the left, under Connection, click “SSH” and verify the “SSH protocol version” is set to “2”. Then expand “Auth” and “Credentials”. Then click “Browse” for “Private key for authentication.” to set it to the private key you generated earlier.
 - a. Then under the “Connection” header on the left, select “Data”. Make sure “Auto-login username” is set to “root” (without quotes). Also click on the “Window” header and set the “Lines of scrollbar” to 10000 instead of 2000 (so you can read back further in the history if something happens).
 - b. Go back to “Session” on the upper left, and name it something memorable under “Saved Sessions”, like “Digital Ocean Droplet VM” and hit save. This will make it so you don’t have to set this up again in the future.
 - c. Click “Open”. You need to enter your passphrase you created earlier. This should enable connectivity to your VM via PuTTY Software.
2. Assuming [WinSCP is installed](#), open the software. “File protocol” should be set to “SFTP” and “Port number” should be set to 22 by default, so don’t touch those settings. Set the “VM_IP_ADDRESS” that you noted down earlier for the VM. In “User Name” box, type “root” (without quotes), but leave the Password field blank.
 - a. Click the “Advanced Button”, and under the “SSH” section you can click on “Authentication”. Under “Private key file:”, select the three dot menu in the white box just below that to navigate to the private SSH key you generated earlier. Click “OK”.
 - b. Once you’re done, click “Save” and set an easy to remember site name (or use the provided name).
 - c. Test the connection by clicking “Login”. Once you’re done, you should be connected with the same key and use that to be able to transfer files to and from your computer or the server as desired.

iv.

- i. Finally, run the script! Run the following commands after connecting to the server.

```
wget -q --show-progress
```

```
https://raw.githubusercontent.com/Wade821/PiDrawpile/master/testing/drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

```
chmod 770 drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

```
./drawpile-installer-official-build-from-sources-with-listserver-and-webadmin2
```

- j. Useful Resources

- i. Guides - Create a Compute Instance -

<https://www.linode.com/docs/products/compute/compute-instances/guides/create/>

- ii. Guides - Setting Up and Securing a Compute Instance -

<https://www.linode.com/docs/products/compute/compute-instances/guides/set-up-and-secure>

- iii. Transfer Files with WinSCP on Windows (Guide Deprecated) -

<https://www.linode.com/docs/guides/transfer-files-with-winscp-on-windows/>

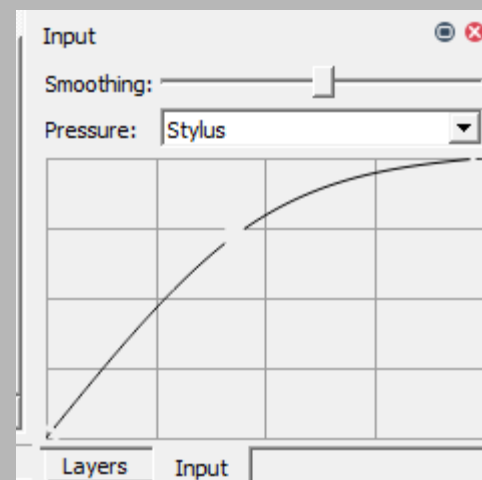
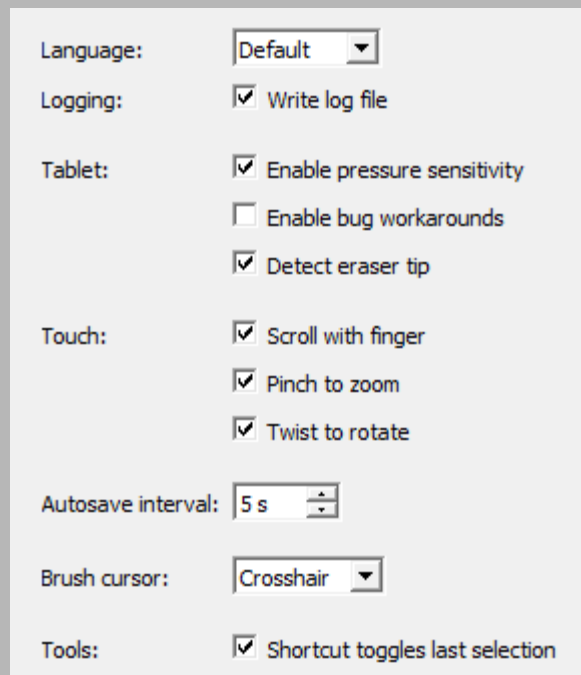
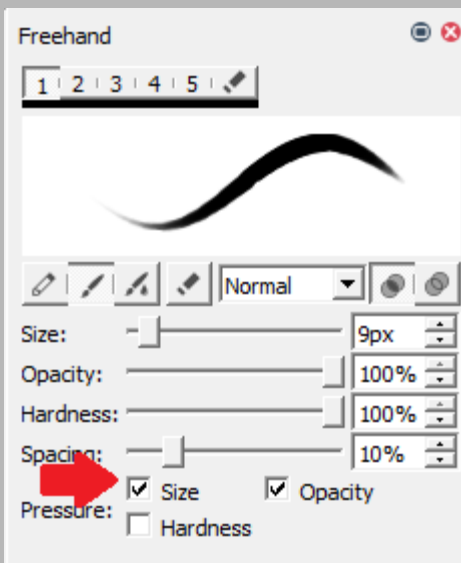
6. To be Determined...

Known Issues for Drawpile 1.0.2 - 2.0.7

1. For a list of Official Issues and Troubleshooting, [click here](#).

2. My tablet doesn't seem to work correctly!

- Make sure "Size" is checked on your brush settings and then test the pen pressure. See left image.
- Go to Edit, Preferences. You should be on "User Interface" by default. Check the box "Enable bug workarounds" as shown in the image directly below. Make sure "Enable pressure sensitivity" is checked. See middle image.
- Make sure your Input panel "Pressure:" option is set to "Stylus". If it's hidden, go to View, Docks, and select "Input." See right image.



- If it does not solve your problem, try updating your tablet drivers. Make sure to uncheck that box that was just checked after doing driver updates to see if the update fixed it. If not, try putting that checkbox back on.
 - [Wacom drivers can be downloaded here](#), just check the model information below your tablet to grab the correct one.
 - Microsoft Surface Users ONLY
 - Determine Which Surface You Have
 - There's a Surface App on the Start menu that can tell you this information, or you can get the Surface App from the Windows Store
 - Type this in the Search box and hit enter. You should be able to find the model info here.

msinfo32

- c. Right click "This PC" on the desktop or start menu, go to properties. Sometimes they put system model info in there with prebuilt PCs.
 - i. If you don't see This PC on the desktop or start menu, you can get it there easily. Right click the desktop, personalize, Themes, scroll down and select "Desktop icon settings". It's called "Computer" under this menu. Turn on anything else you want there and uncheck "Allow themes to change desktop icons".
- d. There might be a model underneath it depending on the model.

2. Determine Which Version of Windows is Installed

- a. Press the Windows symbol key on your keyboard and the letter R at the same time. Type in the following and hit enter.

winver

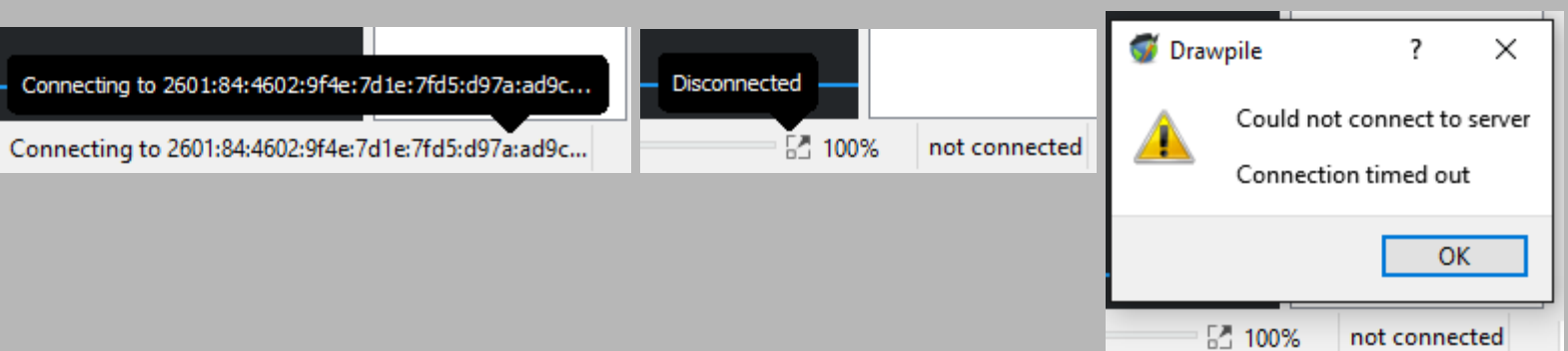
- b. Screenshot or write down all the info on the line that says "Version".

3. *Get the newest Drivers, Firmware, and WinTab Driver.* You may need to determine the correct package to download for Windows based off of the software version of the operating system. If your device isn't listed here, try googling your model name and the word drivers or maybe add WinTab on the end of it.

- a. [Surface Pro Software](#)
- b. [Surface Pro 2 Software](#)
- c. [Surface Pro 3 Software](#)
- d. [Surface Pro 4 Software](#)

- e. Try [reviewing my guide](#) titled "Windows Ink, Pen vs Mouse Mode, & Change Poll Rate for Smoother Lines". Note that this was typed up for a [website called iScribble.net](#).

3. When attempting to load a board, it never starts loading and says "Connecting". Eventually, message box pops up with message "Could not connect to server, Connection timed out."

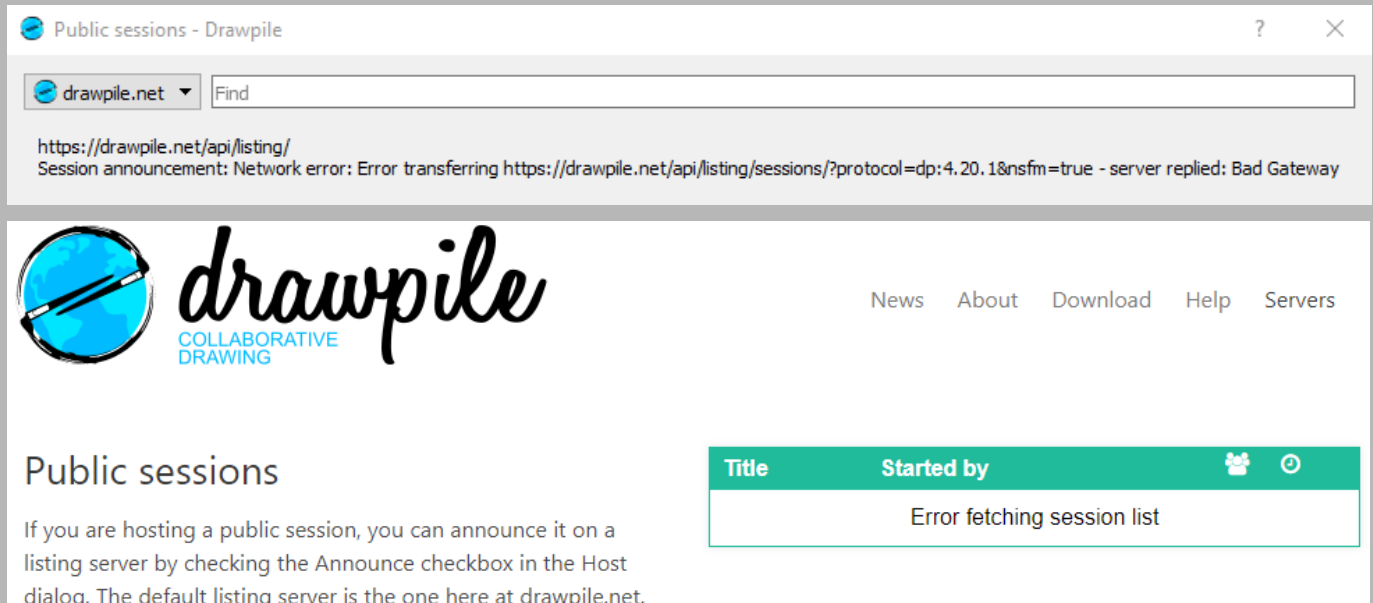


- a. The user hosting the board is behind a firewall and has not properly set up their router or firewall software to forward the appropriate port to their computer. This can also be triggered by Malwarebyte's Anti-Malware Website Exploit Protection.
- b. **The Solution:** Either use the easy way and see the instructions provided earlier for [hosting on drawpile's own server](#). Or you can set up your software and router to host by using the help provided on [drawpile here](#). For Malwarebytes Anti-Malware, open the program, click on "Settings", "Exclusions", and click "Add Exclusion". Select "Exclude a Website" and type in the server name, then click Ok.

4. Can't find sessions to join due to an error. See images below for examples.

- a. Go to Session, Join... and type in "drawpile.net" in the "Server:" field, and hit Join instead. This will produce an alternate listing of Drawpile rooms available. For other servers that may be available, please see [this](#)

[section](#) of this help document.



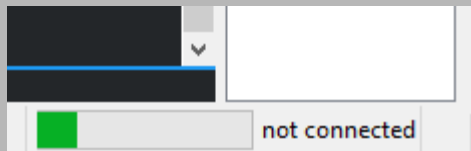
Public sessions

If you are hosting a public session, you can announce it on a listing server by checking the Announce checkbox in the Host dialog. The default listing server is the one here at drawpile.net.

Title	Started by
Error fetching session list	

5. **User disconnects while board is currently loading! (Only for Drawpile 1.0.6 or older)**

- i. When you are attempting to load into a board, you'll see this on drawpile.



1. **The Solution:** In this case, you can use the info listed for just below.

- ii. When users are attempting to connect to your board that you are hosting, you may see the following occur repeatedly with a single user attempting to join your room.

```
<j> ayyyy
*** Tenshimeo joined the session ***
<Prince> ILY <3
<Prince> my savior
<j> <3
*** Tenshimeo left the session ***
<Prince> thank yall so much
```

- iii. **Solution A:** This occurs when the session history has become too long. Use the following command to check the session history length: `/status`

And then use the following command to reduce the session history to 0 MB: `/force_snapshot`

You can use the `/status` command to check the session history length again.

For sessions hosted on drawpile.net, the default session history length is 10 MB before a snapshot automatically occurs. If you're hosting on your own computer, go to Edit, Preferences, Network Tab. Set the session history to a low number like 10 MB, or 3.5 MB (as that's what the Drawpile Central rooms seem to use).

- iv. **Solution B:** Make a new session, reloading the original board and starting a brand new hosting session. Users should no longer have a problem connecting into your board.

1. Sometimes, this is necessary when the board has been open too long. Board will be gray, no drawing is loaded, no users visible in the list but you're still able to chat. Sometimes, you can't save your work in this state nor use the copy command to move it to a new Drawpile session. Best option is to perform a screenprint. See the second page of this other guide here made for [Maintenance on Windows Computers](#).

